

PER AS 472 .A84 v.3

Journal of the Asiatic
Society of Bengal

LIBRARY

RL

OF THE

Theological Seminary.

PRINCETON, N. J.

Case

Drawer I

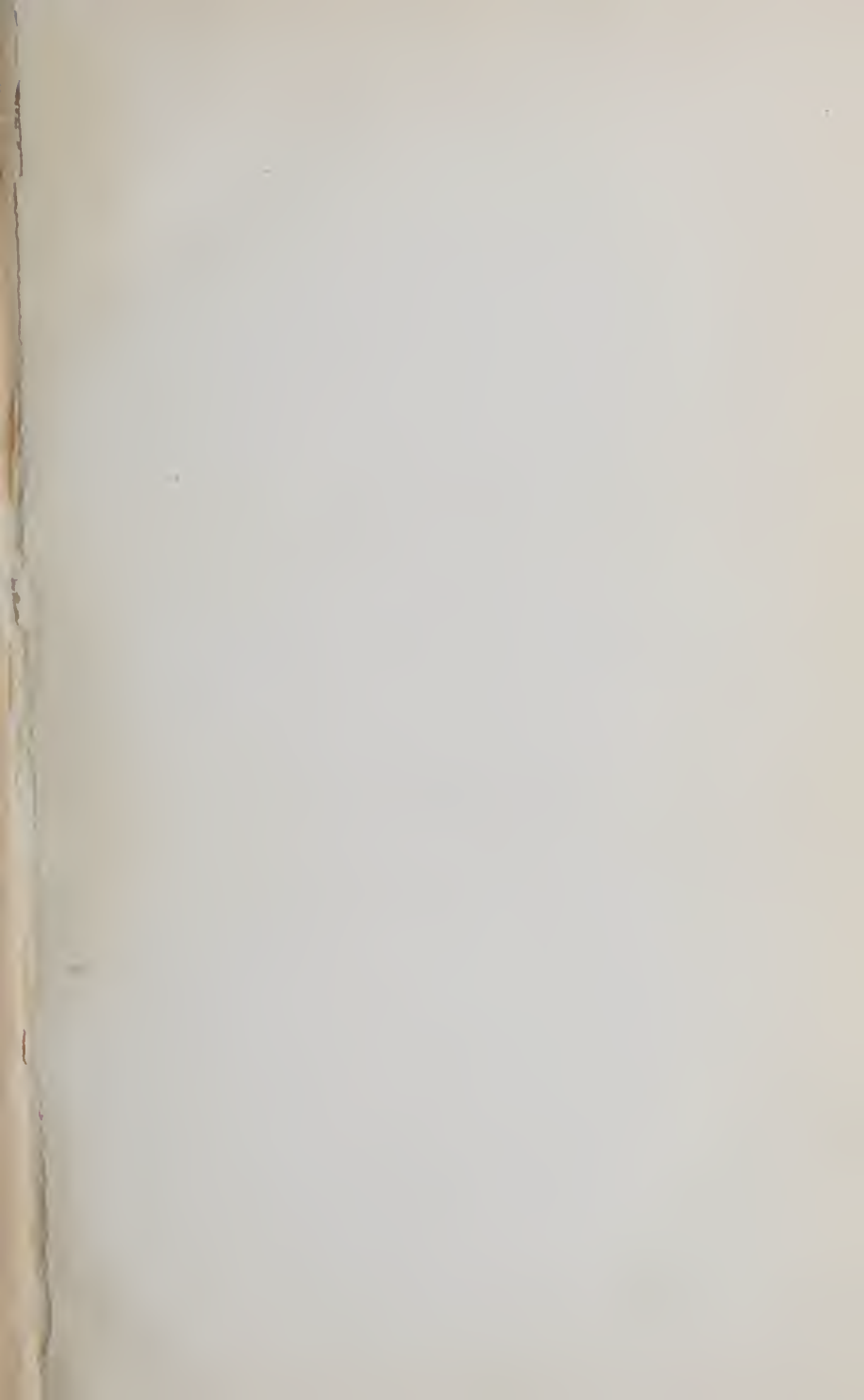
Shelf

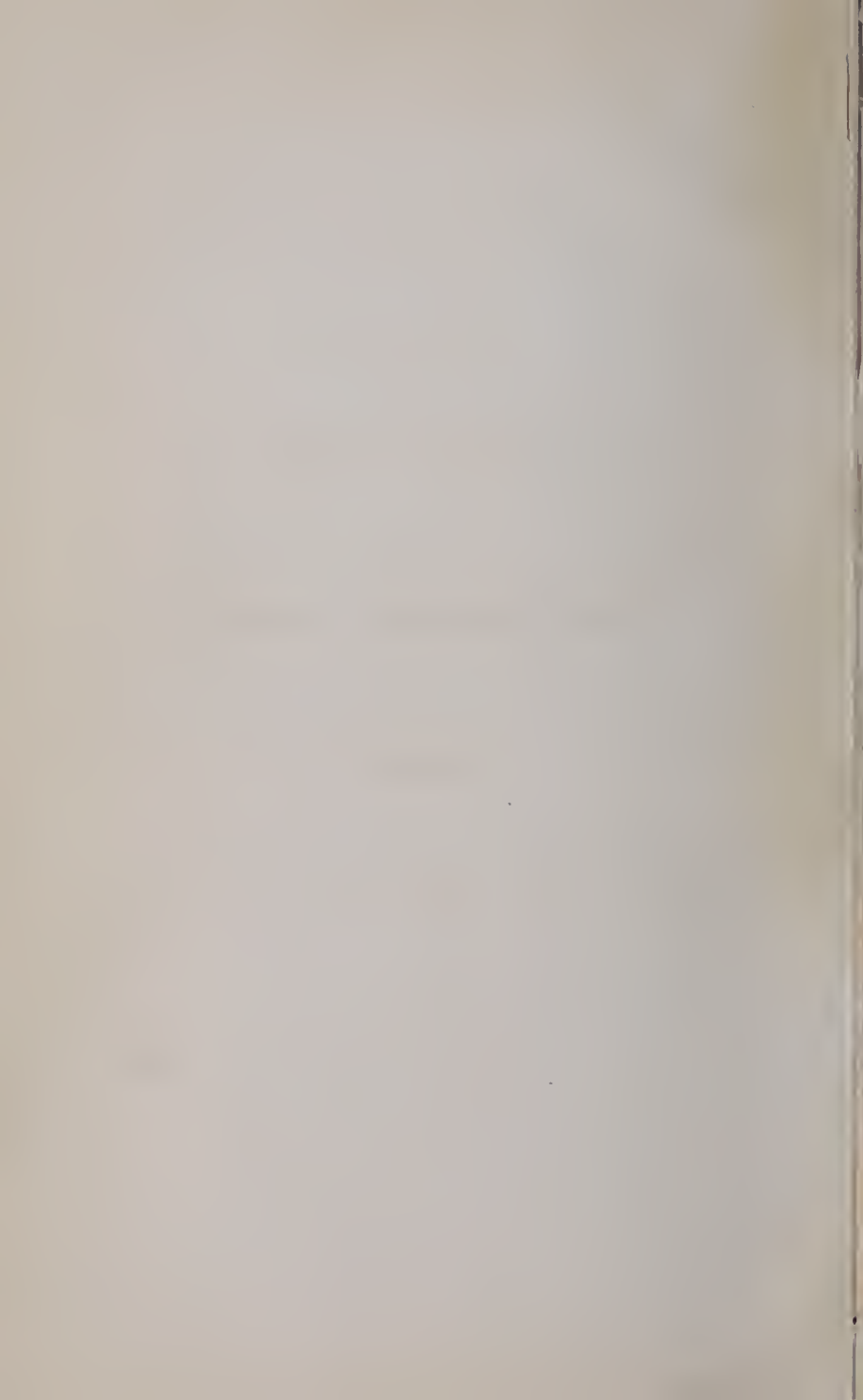
Shelf 5

Book

Number







THE

JOURNAL

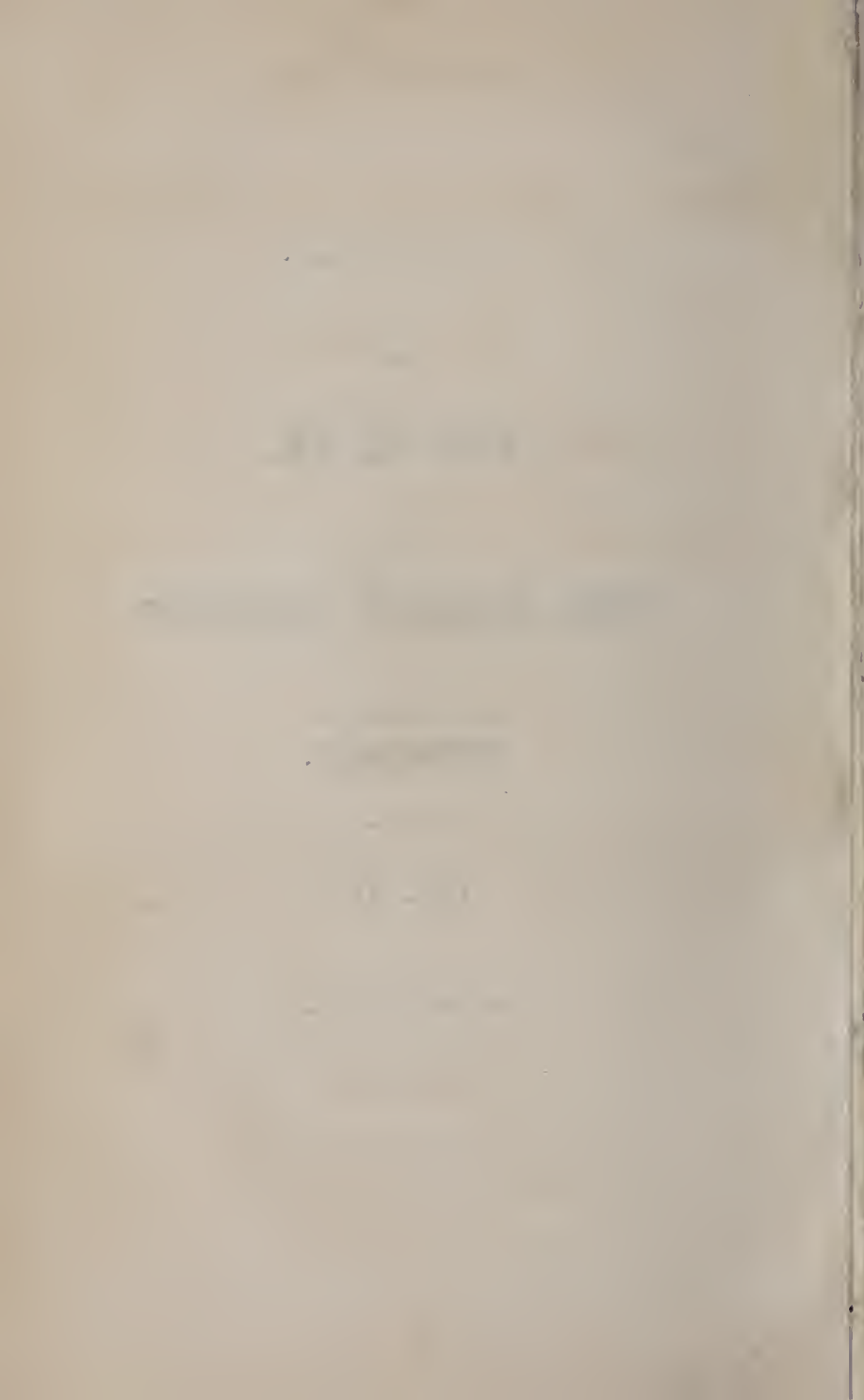
OF

THE ASIATIC SOCIETY

OF

BENGAL.

VOL. III.



THE
JOURNAL
OF
THE ASIATIC SOCIETY
OF
BENGAL.



EDITED BY
JAMES PRINSEP, F. R. S.
SECRETARY OF THE AS. SOC., AND HON. MEM. OF THE AS. SOC. OF PARIS.

VOL. III.

JANUARY TO DECEMBER,
1834.

“It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science, in different parts of *Asia*, will commit their observations to writing, and send them to the Asiatic Society at Calcutta; it will languish, if such communications shall be long intermitted; and it will die away, if they shall entirely cease.”

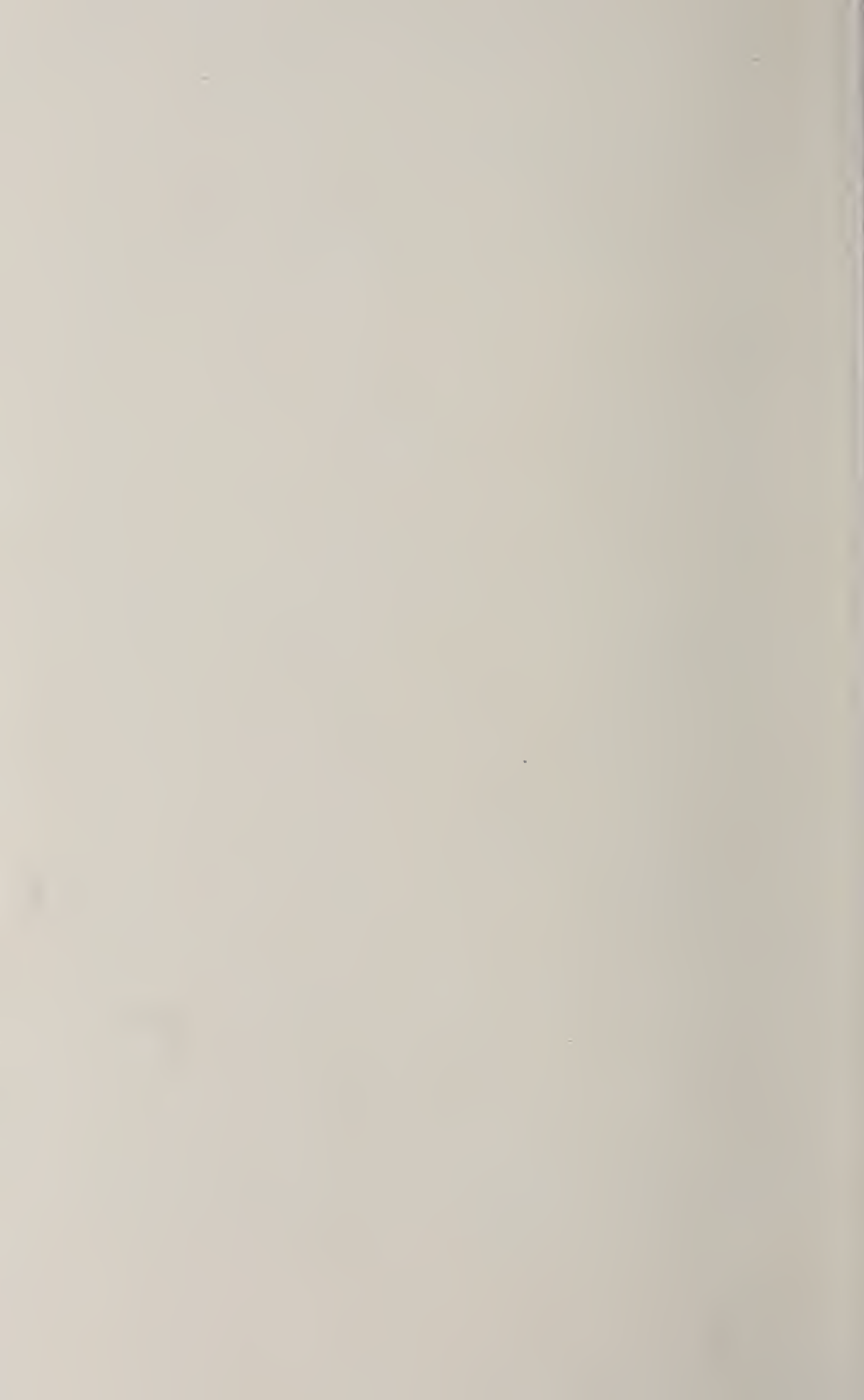
SIR WM. JONES.

Calcutta:

PRINTED AT THE BAPTIST MISSION PRESS, CIRCULAR ROAD.

SOLD BY MESSRS. THACKER AND CO., ST. ANDREW'S LIBRARY.

1834.



JOURNAL

OF

THE ASIATIC SOCIETY.

No. 31.—July, 1834.

I.—*On the Coins and Relics discovered by M. le Chevalier VENTURA, General in the Service of Mahá Rájá RUNJEET SINGH, in the Tope of Manikyála.* By James Prinsep, F. R. S. Sec. As. Soc. &c.

[Read at the meeting of the As. Soc. 20th March, 1834.]

General VENTURA's well imagined and successfully executed operations for the examination of the Tope of *Manikyála*, near *Kabul*, in the year 1830, are familiar to all who are interested in antiquarian research. His own account of the excavations was published in the Calcutta newspapers of the day, and was afterwards inserted, with remarks, in Professor WILSON's essay on ancient Indian Coins, in the seventeenth volume of the *Researches*. Some of the coins have been the subject of discussion and investigation at Paris; and the subsequent collections of Lieut. BURNES, Doctor MARTIN HONIGBERGER, and especially, Mr. MASON, who have all followed in the track pointed out by the success of General VENTURA, have materially contributed to demonstrate the value of his original enterprize, and to make us wish for a fuller account of its highly curious results. Lieut. BURNES favored the Society with his own impressions of the importance and magnitude of the Chevalier's labours from an ocular inspection of the Tope itself, and of the collection of relics which were shewn to him at Lahore. This is printed in the second volume of the *Journal*, p. 308; and an expression, which I ventured to use, in a note subjoined on that occasion, "trusting that the Chevalier would no longer deem us unworthy of being made the medium of their introduction to the world," was, in fact, a hesitating allusion to the good fortune which a letter from Captain WADE had that moment announced; but which I could hardly bring myself to believe. A more

than ordinary degree of magnanimity was necessary to induce the author of such discoveries to forego the natural desire of monopolizing a prize won by his personal achievement and labour, and at considerable cost to himself; but in the present instance it required further the self-denial and disinterestedness of a friend to whom the possession of these valuable relics was generously proffered, to enable them to reach a third party who had no such claims of friendship; and nothing to offer in recompence, but the public notice, which his position enabled him to promise, in the pages of the Journal. I should not do justice to General VENTURA, nor to Captain WADE, did I not make known circumstances so highly to their credit, and I trust therefore that I shall be pardoned by the latter gentleman for publishing the following extract from his private letter to my address, in corroboration of the above facts, from which the world will be enabled to appreciate both the extent of his forbearance, and of the sacrifice made by General VENTURA himself.

Extract of a Letter from Captain C. M. Wade, Political Agent at Lúdi-ana, dated 3rd June, 1833.

“ While at *Derá Ghází Khan* in March last, the guest of M. VENTURA, the Journal for January reached me, containing a notice of the coins found by the Chevalier at *Manikyála*. I showed the passage to him, and he expressed himself flattered by the allusion which you made to his labors in exposing the numismatic treasures buried under that mysterious temple. We had a long and interesting conversation on the subject, the result of which was an offer to me on his part of the whole of the *Manikyála* coins, together with the cylinder in which some of the most valuable were found. I told the Chevalier I could never think of accepting such a gift for myself, but that I should be proud of the honor of sending them in his name to you, who would be able justly to appreciate their value, and to do him the credit to which he was entitled as the author of the discovery. He assented to my proposition, and promised to dispatch these precious articles to me on his arrival at Lahore, for which place he was then about to set out.”

In acknowledging this unexpected and most disinterested offer, I could not but disclaim all permanent interest in the relics, and request M. VENTURA, through Captain WADE, to consider them still at his disposal, although I should be proud, while they were deposited under my care, to do my utmost in making them more fully known to the world.

On the 16th August, the precious packet came into Captain WADE's possession, and although he was unable to find a secure opportunity of conveyance for them to Calcutta, until the beginning of the following year, still through fear of injury or displacement of the various objects, especially the liquid contained in the cylinders, he would not open the

package even to gratify the curiosity of many who wished to feast their eyes on its contents.

General VENTURA'S simple request is characteristic: "Je m'empresse de vous expédier mon fameux Manekiala, que vous desirez pour envoyer à M. PRINSEP: veuillez je vous prie, mon bon ami, vous servir de cette occasion pour faire agréer mes sentimens d'estime à M. PRINSEP, et de le prier en même tems de m'envoyer une description écrite en Français de ce qu'il pourra déchiffrer des inscriptions, et empreintes de ma trouvaille."

The package has just now reached Calcutta under charge of our associate Sir JEREMIAH BRYANT.

I hasten to make known its curious contents to the Society, confining myself on the present occasion to a description of the several articles in the order of their discovery, of which we have a full account in the "Etat des travaux," published by Mr. WILSON, as already noticed, in the *As. Res.* vol. xvii., page 601:—The articles, being separately and carefully packed, left no difficulty in recognizing them from the circumstances there indicated.

Description of General Ventura's operations.

The excavation was commenced on the 27th April, 1830, at the very bottom of the cupola on the south side, where having met with nothing but loose materials, the work was of necessity discontinued.

On the 28th April, the cap of the cupola was laid open, and there at the depth of three feet, six medals (or coins) were discovered.

On the 1st May, at the depth of twelve feet, a square mass of masonry was found, exactly in the centre of the mound, and regularly built of quarried stones, in very good preservation. On piercing ten feet into this, a medal was found in the middle of a clod of earth.

On the 6th, a silver coin and six copper coins were met with at the depth of twenty feet.

I am not able to recognize the coins discovered up to this period, and I conclude they have been mixed with the general heap of scattered coins, all being of the same nature.

On the 8th May, the workmen came upon a box of iron (probably copper) which was broken by a stroke of the pick-axe. There was in this box a second smaller box of pure gold, (*fig. 1*, Plate *xxi.*) with an ornamental top, in the centre of which is inserted a stone resembling the opal but friable and adhesive to the tongue like *tābasheer*; it is reserved for future examination: this box contained the following articles: *Fig. 2*. One medal of gold, weighing 122 grs., or two drachmæ (the same as was depicted from a sealing-wax impression, in the *As. Res.* vol. xvii. as No. 1. of Mr. WILSON'S plate.)

Obverse. There is also a description of this coin in the Journal, ii. 38, but both that and the drawing (Pl. ii. *Fig.* 18) are imperfect, when compared with the real coin, of which I have now endeavoured to give an exact etching. The sceptre held by the king on the obverse has a knob like an ear of wheat. The projection behind the cap is a double fillet or ribband, and not hair: the side-flap on the contrary has more the appearance of hair, and the mustaches are well defined: the left hand holds a hook or key, or it may be a small sickle, with which the ear of corn has been cut? the legend, if Greek, is considerably corrupted (see vol. ii. p.38), but the central part .. ANOPA.. may be traced on many of the copper coins.

Reverse. The seated figure on this side appears at first sight to have four arms: but on closer inspection, what was taken for one right arm may be a sword belt, and the up-lifted left arm may represent the curved part of a bow; the resemblance to wrist bangles and hands however is strong. The half moon behind the shoulders seems to prove the figure to be a sacred or symbolical personage, although the chair is a Grecian fauteuil, and the head-dress resembles a close helmet. The epigraphe on this side can hardly be other than MANAOBA...FO: the first may be connected with the name of the sacred personage, or the locality; the last two letters may be the date, 73, of some unknown era.

Fig. 3. A gold ring, set with a pale sapphire stone, having characters engraven upon it, apparently Pehlevi, (*fig.* 3, *a.*)

Fig. 4. A small bit of pale ruby, (Balas or Balakshani ruby, see vol. i. 358.)

Figs. 5, 6, 7. Three very small silver coins.

Fig. 8. A thin silver Sassanian coin, similar to those so frequently met with in Persia; weight 60 grs. or 1 drachma.

Obverse. The king's head, bearded, and having flowing curled hair: the cap peculiar for its central ornament of feathers, which somewhat resembles the Egyptian symbol of two wings supporting (in this case) a half moon, and star. The characters are Pehlevi and illegible.

Reverse. A rudely executed fire altar and two priests or supporters.

Figs. 9 and 10. Two silver coins, resembling the Sassanian piece in thinness and general character, but destitute of the fire altar; weight about 50 grains each.

Obverse. A beardless head, with well marked Indian features: the head-dress has a kind of tirsúl in the centre, and two flowing ribbands. A name very plainly written on the field in an unknown character. The whole is encircled with an inscription at once recognized to be in Sanscrit characters; these have been also engraved under the coins, to shew the coincidence of the two inscriptions, one of which will materially assist the decyphering of the other*.

Reverse. Head of a female, front face, with very singular headdress: necklace and rows of pearls on the bodice: legend in the ancient Persian character not easily legible. It is copied in 10, *a.*

Fig. 11. The last coin of this series is a silver coin, already depicted as 43 of Mr. WILSON'S plates, very rude in execution, but of strong relief. The fabrication of this is decidedly Hindu, and the inscription on the

* A few more of these curious coins have been received in KERA'MAT ALI'S collection, but I do not introduce them here, being desirous of exhibiting the Manik-yála treasures unmixed. One bears the name of KRISHNA as *Srī Vāsu Déva.*

reverse resembles the *Lantsu*, or pointed variety of the Nagari Alphabet, of which we have specimens from *Nipal* and *Tibet*. The words visible are *Srí yag*

Obverse. A rájá, coated, his disproportionate left hand seems to hold the hook before remarked; the hair is disposed in curls; on the right is a symbol resembling a tree, but it may probably be the sleeve of the right arm.

Reverse. I have little doubt that this rude figure represents a female standing, with flowing drapery; the head and face are out of the die, but the breast and waist on comparison with other coins of the same type (for they are plentiful), fully bear out this conclusion.

The contents of this first box are peculiarly valuable, not only from the variety of coins here discovered to be contemporaneous, but from the presence of the Sassanian coin, which brings the epoch of the structure within cognate limits, unless indeed a dynasty of fire-worshippers reigned in these parts previous to the formation of the last Persian monarchy by ARTAXERXES in A. D. 223: but we must postpone all speculations, and proceed with our description of the works.

The above box and its contents were found in their natural position, as deposited at the base of the square stone block of masonry which terminated there: (I am uncertain however whether the French text will bear the interpretation I have given, or whether the *square* is not a hollow square or chamber “on a trouvé un carré parfait a douze pieds, tres bien établi au centre, bâti régulièrement en pierres de taille et tres bien conservé:—apres avoir creusé dix pieds, &c.” and afterwards “le tout au bas du carré dont la batisse réguliere s’est terminée là.”)

On the 12th May, the perforation had reached thirty-six feet, when another copper coin presented itself.

On the 22nd May, as it was imagined that nothing more would be found in the centre of the cupola, on account of the termination of the square building, an opening was made on the northern side, of the height of six feet, and twelve broad: the excavations were pushed forward at both points.

On the 25th May, a depth of 45 feet had been attained, when on lifting up a large quarried stone, another similarly squared stone was found underneath, having in its centre a round hole; in the middle of this hole there lay deposited a copper box, somewhat similar in form to the gold one just described: it was perforated on opposite sides, (*Fig. 12.*) where apparently handles had been soldered on. The lid was decayed. Inside this box were found, *Fig. 13.* a little piece of cloth. *Fig. 14.* A circular crystal drop, and

Fig. 15. A small cylinder of pure gold. (Whatever relic may have been in the gold cylinder has been lost.)

27th May. On this day, at the depth of 54 feet, another copper coin was turned up.

On the 29th, at the depth of 64 feet, an irregular hole appeared of six lines broad, in which were discovered

Fig. 16. A copper ring, and

Fig. 17. A couree (cypræa moneta).

At ten lines lower down were also found an iron ring and three more Sassanian coins, in a very decayed state, *Fig. 19.*

On the last day of the same month the principal discovery rewarded the Chevalier's labours.

An immense stone slab seemed here to cover the whole surface: it was removed with great labour and difficulty, and underneath was perceived with joy a small chamber or basin cut into the solid stone, a foot in breadth and depth, the interior of it built up with stone and lime; in the midst of this, on its careful removal, were found, thus hermetically sealed, the second series of relics now to be described (*Plate xxii.*)

Fig. 19. A box of copper (supposed to be iron by M. VENTURA) filled with a brown compound liquid.

Fig. 20. Within this box and liquid, a brass cylindrical box, cast and turned on the lathe:—the surface of the metal was in such excellent preservation as still to retain the fresh marks of the tool, but the pinnacle on the top of the lid was broken off by corrosion, or in consequence of a flaw at the neck.

The lid having been made on the lathe also fitted perfectly tight, and must have kept in, without loss by evaporation, another portion of the thick brown liquid with which it was found to be filled.

On cleaning the upper surface of the lid, it was discovered that an inscription had been there *punched* circularly round it. The letters are formed by dots, but they are perfectly well preserved, and are of the first importance in making out the nature of the deposit. *Fig. 20, b* represents a facsimile of this inscription, which is again written below to facilitate its lecture. The character so strongly resembles an ancient form of *Nagari*, such as might be used in writing, without the head-lines of book-letter, that sanguine hopes may be entertained of its yielding to the already successful efforts of our Vice-President and Captain TROYER. The same writing has been found by Dr. MARTIN and Mr. MASSON in other tops. The latter has favored me (through Dr. GERARD) with a transcript of two in which he finds the same words repeated. I have placed these on the same plate for convenience of examination.

In this brass box, 20, were five copper medals, *Figs. 28, 29, 30, 31, 32*, all differing in device, but of that kind already known to us from a multitude of specimens found in Afghánistán and Upper India, by the arbitrary name of "Indo-Scythic coins," and now ascribed by Mr. MASSON with certainty to KANERKA, KADPHISES, &c.

They are all wonderfully well preserved, and seem to have been selected to shew us the prototype of the very five species of coins to which the key monogram is peculiar.

Leaving these coins, as already familiar to us, although by no means exhausted in interest :—within this brass cylinder and buried in the brown liquid appeared a gold cylindrical box, *Fig. 21*, four inches long, by $1\frac{1}{2}$ inch in diameter ; the lid fitting closely on the interior of the cylinder, which it entered to the depth of $1\frac{1}{2}$ inches.

This box was also filled with thick brown liquid mixed up with a multitude of fragments of what M. VENTURA supposed to be broken amber (*ambre brisé*). *Fig. 22, a, b, c, d, e*, will give some idea of their appearance when washed. They were of a light yellow or topaz colour, which was driven off by a red heat, leaving them colourless. The first conjecture supposed them to be fragments of a glass vessel, which burst into pieces from the expansion or fermentation of its contents ; and that the small bit of string, *Fig. 23*, might have been used to bind the cover ?

Within the box was discovered also, *Fig. 24*, a small gold coin weighing precisely 30 grains ($\frac{1}{2}$ drachma). The device resembles in some respects the larger gold coin in the first gold box.

Obverse. The king holding the spica and hook, (quere, sickle ;) dress as before described, and characters on the margin decypherable ; as, ONIKIKOPANO—the rest illegible.

Reverse. A sacred personage standing with his hand out-stretched in an impressive attitude ; his head surrounded with a halo or rather *sun*, as distinguished from the moon on the other coin. The four-pronged symbol occupies a place to the right, and on the left are some indistinct letters, KNIPO. The head of the figure is rather out of proportion, but the execution is otherwise very good.

There is also another minute coin of gold, *fig. 25*.

But the article of chief value in this cylinder is decidedly

Fig. 26. A plain disc of silver, upon which have been *engraved* certain letters, evidently calculated and intended to explain the purport of the whole mystery. The characters are precisely those of the lid of outer brass cylinder : but their combination is different. There can be little doubt of their affinity to the Sanscrit, but the difficulty of decyphering them is enhanced by the substitution of the written hand, for the perfect Nágari, which it is clearly proved, from the coins discovered in the first box, to have been well known at the same period. The difference is such as is remarked between the *mahájani*, and the printed *Nágari* of the present day.

I am unprepared to speak of the nature of the brown liquid, which must therefore furnish matter for a separate notice.

In the same receptacle of stone and lime were deposited outside the copper box a collection of forty-four copper coins : all matching with

one or other of the five types so carefully preserved within the brown liquid.

On the 2nd of June, one more copper coin was extracted, and on the 3rd of the same month, six more of a similar nature.

On the 8th June, the opening perforated from above met that from the side, and reached the earth beneath the foundations. The excavations were however pursued to a depth of twenty feet below the level of the structure without making any further discovery, until the setting in of the rains finally obliged the Chevalier to discontinue his operations.

I had delayed the publication of the above narrative in hopes of obtaining a section of the building, and a ground plan of the spot, which Captain WADE had obligingly written for at my request; but the lamented illness of General VENTURA and his visit to Loodiana for medical advice have precluded the possibility of its arriving within a reasonable time; it may however still reach me ere I resume the subject, which I must now drop, to admit of the insertion of Captain GERARD's and Mr. MASSON's further details on this interesting field of discovery. I have before alluded to Dr. MARTIN's prosecution of excavations at Jelalabad: the extent and success of these, from Dr. GERARD's account, is much greater than might have been expected. While he was pursuing his search in this direction, Mr. MASSON was equally active in the plains of Beghran; where his good fortune in the discovery of coins and his talent in decyphering, arranging, and describing them, and eliciting useful results, have been made conspicuous by the valuable memoir read on the 30th April, to the Society. A subsequent note from him to Dr. GERARD, (from which extracts will be given presently,) puts us in possession of the progress of his operations on the Topes up to the end of March last. Dr. GERARD himself also remained at Kabul some time, zealously pursuing the same inquiries.

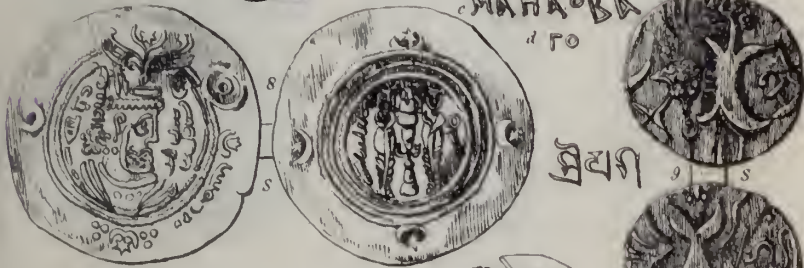
Thus we shall bring together in one view the history of the opening of the Punjab mounds up to the present time, when we may suppose them to be nearly exhausted of their treasures; but we must remember that, however successful subsequent researches may have proved,—to the Chevalier VENTURA must be awarded the palm of originality in these discoveries: while he alone perhaps could have commanded sufficient influence, from his position in a dominant court, to overcome all the scruples and difficulties which the first enterprise of the kind naturally presented. When once it was found that treasures lay hidden under the topes, a stimulus was furnished for the prosecution and completion of similar researches, and I fear it must be added, for the demolition of these mysterious monuments of past ages.

Relics found in the *Tape of Manikyala*

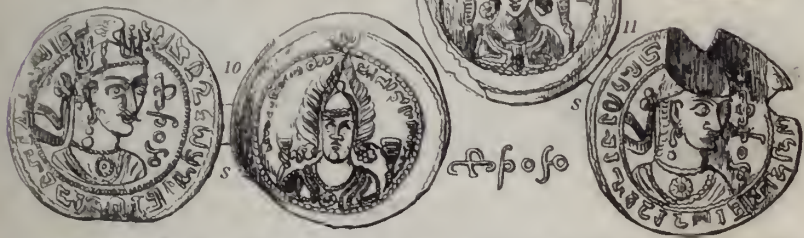
First discovery



ॐ नमो भगवते वासुदेवाय
 ॐ श्रीगणेशाय नमः
 ॐ श्रीमहादेवाय नमः
 ॐ श्रीशंकराय नमः



ॐ नमो भगवते वासुदेवाय
 ॐ श्रीगणेशाय नमः
 ॐ श्रीमहादेवाय नमः
 ॐ श्रीशंकराय नमः



ॐ नमो भगवते वासुदेवाय
 ॐ श्रीगणेशाय नमः
 ॐ श्रीमहादेवाय नमः
 ॐ श्रीशंकराय नमः

Second discovery



Pinceps del et sculp

Third discovery



Fig 12

17

16

18

II.—*Memoir on the Topes and Antiquities of Afghánistán.* By J. G. Gerard, Esq. Surgeon, Beng. Est., addressed to the President of the Asiatic Society, from Jelalábád, 4th Dec. 1833.

[Read at the Meetings of the 30th April and 20th May.]

The topes or edifices of which *Manikyála* is already familiar to us by the enterprising researches of General VENTURA, had appealed to our curiosity in the journey to *Turkistán*, but three only were visited en passant; viz. *Manikyála* itself, one at *Usmán Khátír* in the basin of the *Indus*, and another at *Pésháwer*. On my return to *Kábul*, in November last, ample gratification awaited me, through the zealous exertions of Messrs. MARTIN HONIGBERGER and MASSON, whom I met in that city.

The interest excited by the labours of these travellers (as might be supposed) was not limited to the mere inspection of their collections, which were displayed to me with an open candour that leaves me their debtor. I followed up the inquiry to which they had unfolded to me the clue; and though unproductive of similar results to those which have crowned their exertions, I am enabled to speak to some points from actual experience, and hope to have it in my power to add more hereafter.

The monuments now about to be considered, which were first introduced to our notice by Mr. ELPHINSTONE, are calculated to rouse the attention of the antiquarian and the philosopher, when he surveys the relics they disclose in connexion with dynasties, of which all our knowledge is scarcely more than the faintest lineaments, and of the events to which they yielded and ceased to exist, history gives us little or no account. To have a prospect of filling up a blank in chronological annals is of itself sufficiently interesting, but it is doubly so when these may serve to illustrate the career of one whose exploits are a theme of so much fame, and whose foot-steps have employed so many pens to trace even consistently.

These ancient edifices may perhaps present to us the sepulchral remains of the Bactrian kings, and others who succeeded to their sway; but, whether we view them as cotemporary with the Grecian dynasty of *Balkh* in *Turkistán*, or of those subsequent satrapies which emanated from the remains of that kingdom, the same thoughts recur, the same suggestions rise, Who were those kings? and what was the extent of their individual sway in these and other regions? for there is no doubt that the whole of the *Panjáb*, and even a great part of the Gangetic territory and *Sind*, were the seat of their dominion, whether this was Indo-Scythic or Indo-Grecian;—by what revolutions their reign termi-

nated, and they themselves became extinct? and who were their successors till the period when the frenzy of Muhammedan religion overturned the whole institutions of the country? These questions, which involve many others, may yet be answered by these memorials.

Ancient history is sufficiently intelligible, and conducts us to the path, and even the allocation of Macedonian conquest in *Afghánistán*; and if identity in the appellations of places is still perplexing, and even apparently inaccessible, it must be assigned rather to a deficiency in ourselves, than to a result produced by any interchange of language that may have occurred during the lapse of ages; for instance, if a person, familiar with Sanscrit, were to visit these regions, there is no doubt that things would speak to us, instead of awaiting to be interrogated.

We are indebted to Col. WILFORD for a knowledge of the fact, that the names of all the places in ALEXANDER'S route from *Bamián* to *Multán*, are pure Sanscrit.

The Persian will also assist us in the inquiry. I need scarcely mention the single word *Panjáb* (i. e. *panj-áb*), five waters; or Hydaspes (*Jhilam*), the initial syllable of which answers to the Greek term for water, and the last to the Persian word "*asp*," a horse; and it is notorious, that the *Doáb* (two waters, or rather the land between them), of the *Jhilam*, is famed for a breed of fine horses called *dhaní**, and also of fine women. It is related to us, that so many honors were reported to be paid to beauty in the country of the Cathæi under King SOPHITES, that even dogs and horses were selected for their quality; and farther, that notwithstanding their barbarism, this nation was first in wisdom, being ruled by salutary customs, one of which was, that children born with disproportions in any part of their body were to be killed; nuptials being only influenced by beauty of exterior in children: a commentary upon this will readily occur in the practice of the present day, and the usages which prevail in the territory watered by the Hydaspes. In *Turkistán*, the field for etymological affinities is equally prolific: the river Jaxartes, we are told, is read in the Mongol *Ixiartis*; but the Túrks also call it *Secandriæ* or ALEXANDER'S river. The river *Sogd* retains its name, as we find from ISSIR OOLAH'S Journal. The Sogdrians are therefore readily recognised as the people inhabiting the course of that valley. The Getæ must be identified with the *Jogatai*, who inhabit *Zataria*; beyond the limit of *Yarkand* and *Kashgar*, and of which stock the present king of Delhi and his relative, the sovereign of China, are descendants. *Balkh*, I think, Colonel WILFORD designates in the Sanscrit *Bahalac*; also *Ba-*

* Mahá Rájá RUNJEET SINGH gets his best steeds from that district.

mián, in *Vimiyán*. *Bakhtra*, of which *Balkh* was the capital, is the native cognomen which the Greeks modified into the more liquid sound Bactria or Bactriana. *Bakhtar** is applied to *Kábul* to this day, and occurs in the histories of those countries; but if this proves any thing, it is that the Greeks retained the appellation, and did not bestow it. *Pesháwer* is known as a district of *Baigram*, which was a province of *Bakhtar*; in short, a philologist coming into those regions would find synonymes at every step, and could not fail to elucidate etymologies, which we at present receive as vitiated beyond the limits of analysis, and inaccessible by synchronotic induction. In this view, the *Afghán* or *Pashtú* language may furnish us with many idioms, and especially the local dialects of districts which have resisted Muhammedan conquest, and are comparatively in a state of primitive simplicity. The vernacular dialects of the *Tájiks* (simply crowned heads or descended of kings,) the aborigines of the country, may be expected to elucidate something; for it is there we can hope to find traces of far antiquity; and if sepulchres alone are the result, they may at least enable us to connect local affinities, and fix the situs of some monarchs whom we already know to have been extant, but of whose reigns and institutions no vestiges have hitherto been discovered; and though the inference is, that they perished by the sword of the Khalifs, which swept away almost every written memorial of a prior epoch, it would be an extreme conclusion that some annals of the dynasties which followed the Grecian empire, if not those of the original settlers in *Balkh*, may not exist. The period of 1200 or 1500 years is far from incompatible with the expectation of finding inscribed legends either in stone or metal. Coins, the representatives of nations, are already in our possession, and obnoxious as they are to Islamism, as the types of idolatry, they have survived both the ravage of time, and the intolerance of bigotry, and still mock the prejudices of religious zeal; we may therefore expect to find remains that will afford local illustrations the more interesting to anticipate from the very obscurity of the subject, the total absence of research at any former period, and the barrenness of history and tradition concerning such events.

The topes or tombs which appear in the environs of *Kábul* are planted along the skirt of the mountain ridges, which support that elevated plain, and this peculiarity is common to almost all of them: the adjacent level has obviously been the basin of a lake or sheet of standing water, till drained away by the course of rivers, and it still continues more or less a quaggy marsh. The first settlers seem to have

* I don't know if it occurs in *BABER'S* Memoirs, but I think it does in the *Timúr* Nama.

chosen the rising ground at the roots of the hills for their locations, the ancient city of *Kábul* (still visible in the remains of mounds or heaps) also occupying that basal line.

The position of the monuments, if not influenced by natural causes, or selected from motives of religious veneration, is rather fanciful; those which I have seen being either situate close under the cliff of the mountains, or secluded within recesses, wherever a running stream had its course; and it would appear that a rill of water nourishing a few trees or patches of cultivation and verdure was a conjunctive feature of every spot. The most usual site of those structures is an isolated rising ground, washed by a perennial current. Trophies of such magnitude, serving merely as receptacles for the dead, and often devoid of any traces either of them or of the living, sequestered and almost shut out from sight, will not be sufficiently intelligible to our ideas, except by comparing them with edifices in other regions of the world, the object of which is known:—if they had been smaller they must have fallen to ruin in a few centuries. The masses of *Manikyála* in the *Khyber* Pass and at *Pesháwer* almost forbid the idea of identifying them as tombs, except some more decided proofs are forthcoming than have yet appeared, though we are not without analogies in the size of some of the Muhammedan cemeteries, not to speak of the pyramids of Egypt themselves, while the absence of any inscriptions to denote another purpose, leaves us in the former belief.

Of the sepulchres excavated by M. MARTIN HONIGBERGER, amounting to more than thirty, the greater part have their sites at *Jelálábád* and the adjacent territories, and it is this spot particularly that commands our notice, since it may be assumed to have formed the seat of one of the Bactrian sovereignties, as *Balkh* did another; the more readily as it would seem to answer in its locale and conformation to the spot which ALEXANDER consecrated with Bacchanalian revels; and it is certainly from physical position fully eligible for the capital of a kingdom, uniting, as if by a band, the temperature and even some of the productions of an intertropical climate, with zones chilled by perpetual frost, having a considerable expanse of level, and a soil irrigated by perennial streams. Here we behold the tombs of a long race of kings (as I suppose them to be) which have survived in obscurity the lapse of many centuries: a large proportion of them, indeed the majority, have crumbled into mere tumuli; but, except those opened by Mr. HONIGBERGER they appear to have been hitherto untouched by the hand of man.

Muhammedan bigotry, which swept away all the traces of written knowledge within its reach, and defaced the memorials of whole nations,

has spared these cemeteries : yet this does not surprise us when the *Bhúts* of *Bamián*, such gigantic types of idolatry, remain trophies of cotemporary or even prior ages. These wonderful images are mentioned in the Koran, and if we admit the authority of the *Mahábhárat*, and the still more fabulous history of the *Pánu* dynasty, their antiquity will approach to a period co-existent with the fall of the Grecian kingdom, which is perhaps somewhat repugnant to conjectural analysis ; yet we must either assign that date, or an epoch antecedent to ALEXANDER'S conquest, for the construction of those wonderful idols.

But, to return to *Jelálábád*. The topes are here very thickly planted on both banks of the river, which washes the northern limit of the valley ; the declivity of the soil being from the snowy ridge of *Sufféd koh*, has thrown the stream quite to their base ; and here the tombs appear, black with age, extending from *Bálá Bágh* to the conflux of the *Kábul* river at *Dronta*, about 10 miles downward and four from *Jelálábád*. As we passed along, several were noticed, which did not appear to be delapsd ; but they had no doubt been excavated at their base, since it is in this immediate vicinity that recent discoveries have been chiefly directed.—In the plain were seen the ruins of others which had subsided into mere heaps like cairns : these were standing in the midst of green fields, but this is rare ; and upon a shelf of conglomerate rock, and diluvial accretions continuous from the roots of *Sufféd koh*, and here forming the cultivable limit of the valley on the south, extends a long line of tumuli or ruined sepulchres, insulated upon natural eminences ; though often upon raised platforms, a dozen of these may be recognised, not as mere visible heaps, but mounds of great size, and which until very recently had been undisturbed by man*. Several having been opened by Mr. MARTIN HONIGBERGER with sufficient recompense. Their position is strange enough, upon a bare rugged surface of attrited stones, furrowed by the intersections of water-courses, the cliff of which formed of agglutinated pebbles, or pudding stone, is hollowed into recesses which were represented to me as the caves of the *Káfirs*, or “unbelievers :” they are still inhabited by the pastoral tribes, who migrate with their flocks, according to the seasons of the year, and take up their winter quarters in these Troglodite abodes. The site of the topes commands the whole landscape, which is limited to a narrow slip of luxuriant cultivation, sloping to the cavity of the valley ; the interval southward, of ten or twelve miles, being a high plain of gravel, pebbles, and rolled stones, all sterile and arid to the foot of *Sufféd koh*, where again villages and

* There is one immense edifice, but now crumbled into a mere heap, near *Jelálábád*, which serves the *Nawab* as a prospect point : he often repairs to it and seats himself upon its summit for hours to enjoy the fresh atmosphere.

horticultural productions abound, ramifying within the flexures of the mountains, or rising upon the acclivities, till checked by the rigor of climate. It must have been in this neighborhood that ALEXANDER revelled in imitation of Bacchus, and there is actually a spot upon the flanks of the snowy ridge that would seem to correspond with the locale of that event, the summer residence of the Nuwab of *Jelálábád*, which is described as affording the most delicious transition from the heat of the valley, embowered in the most redundant ever-green verdure. This portion of territory acknowledging but a capricious allegiance to the Nuwab, and a less certain attachment to his authority, is seldom frequented and little known; and though it is affirmed that there are no monuments beyond the line above alluded to, I cannot doubt that research would be repaid, and that along the skirts of a magnificent range, crowned with eternal snow, tombs will be discovered: the situation almost warrants the belief, if that has been selected from a regard to natural concomitants, and in *Kábul* the choice has evidently been influenced by such circumstances, for we cannot otherwise account for a position that connects its objects with the surrounding gloom. There, in one of the recesses or glens deeply locked within the mountains, stands a Grecian pillar called *Surkh Minár*, from its red colour. The site is isolated upon a natural eminence, showing a steep acclivity, lofty and almost mural cliffs rear on all sides. Another Grecian monument or minar, appears perched upon the crest of the ridge, at a great elevation; neither of these bear inscriptions nor any kind of device, but I am informed there is no doubt about their origin.

The decay and most commonly total wreck of all the edifices planted upon the southern margin of the dell at *Jelálábád* is easily explained in the nature of the materials that have composed them, which are pebbles of vast size, or blocks of stone, attrited by water to smoothness, conjoined by a cement of mud. They have consequently been easily deposed, and have crumbled away into mere heaps, like gigantic mole-hills. Where these have been excavated at their base, a small hollow square or cavity is disclosed, formed of hewn stones*, wherein was deposited whatever remains were designed. These topes differ very materially from that of *Manikyála*, and *Usmán Khatir*, where the square is continued from the top in the form of a shaft. In none of those which I have seen, or which have been opened by Mr. HONIGBERGER, does this conformation occur, and we may at once note it as a distinguishing feature in these fabrics, which has no doubt a local import. There are indeed few exactly similar; for they vary in size, in external decorations, or in their structure; though the contour has

* Then the *carré* of Gen. VENTURA, about which a doubt was expressed in the foregoing paper, was a hollow, and not a solid, square.—Ed.

a generic type, as we should expect, if the mausolea represented the offspring of a single and original dynasty; however much its character might be altered by the interchange of successive generations, deriving new ties of consanguinity, in the same manner as ALEXANDER did, intermarrying with the conquered, which he considered a link of union in a government, that was to become dependent upon its natural resources, though perhaps the only apology that he could offer for the sudden transport of love which wedded him to ROXANA.

The contents of the thirty or more topes excavated by Mr. HONIGBERGER are of the highest interest. Many of them were indeed unproductive of any insignia by which we can identify their original design, or connect them with their founders: a circumstance the less remarkable, when we consider the surreptitious interests of the workmen often employed remote from any control, but even where control embraced the entire operations the labour often ended in inanity. Many of the sepulchres (perhaps most of them) are comparatively small*; from 30 to 45 or 50 feet high, with a circumference of 80 to 110 feet; and not one of them presented the structure of *Manikyála*, or a hollow shaft penetrating from the top, filled up however with the materials of the building, and discovering deposits of coins at various intervals, which continued beyond the limit of the shaft or 25 feet, to the base where the excavated stone reservoir was found, that proved so fruitful of reliquæ. Nothing answering to the above has accrued to Mr. HONIGBERGER, if we except a single gold coin, I believe of SOTEREAGUST†, which was found in one tope lodged within a silver cup, but a similar cup yet unopened, would seem to argue the prototype of that acquired by General VENTURA. The exterior is a hard metal, containing a fluid which is perhaps inclosed within a golden casket like that of *Manikyála*; on perceiving which Mr. HONIGBERGER with provisionary care cemented the whole cylinder, till he should lay it before his countrymen at Vienna. With the above solitary exception, I do not think any coins were elicited from the tombs, nor any other device indicative of the object of their erection, though it would be an extreme supposition to entertain, that such fabrics should be raised as mementos to posterity without a single trait

* In the gorge of the *Khybar* Pass which penetrates the country from *Pesháwer*, stands a most magnificent edifice, equal to or exceeding that of *Manikyála*, and if I am not mistaken, there are others. Mr. HONIGBERGER sent a servant to explore the antiquities of this district, habited as a faqír or mendicant, his best or only passport among people who live by pillage. He tempted the *Khyberis* to dig by the prospect of treasure, but they would do nothing without pay, and the object was thus (fortunately) abandoned.

† *Soter-megas*, see Mr. MASSON'S Memoir, page 168.—ED.

to connect them with the individuals whose existence they commemorate*. The relics which have accrued to Mr. HONIGBERGER are however extremely curious, consisting of very minute bones, or their dust, pearls, pieces of amber and rubies, and different kinds of sedimentary remains, the nature of which can only become known by chemical analysis. These were found reposing within excavated (turned) cylinders, of a soft striated stone, quite similar to that of which the shot and shells of H. R. H. ABBAS MIRZA at Meshed are made. These cups, both in their size and form, correspond to a model which is frequent enough in India : they have a lid surmounted by a small knob. A roll of paper, apparently the back of the *Bújpatra*, containing written characters, occurred in one instance ; this precious fragment may unfold some satisfactory evidence of the origin and design of the edifice which enclosed it. Small burnt clay lamps, and occasionally square or oblong clay receptacles, filled with osseous remains, gems, and thread, are among the collection. If my memory does not deceive me, I think I remarked small golden images of birds, while I am certain that many things escaped my observation, and also that I retain but a very imperfect idea of any individual relic, notwithstanding the candor and liberality with which they were displayed to my view. I felt backward to gratify a curiosity that had little to recommend it, and the brief and defective notice I have now taken of Mr. HONIGBERGER's discoveries, while it can only convey but a faint trace of the facts which remain for original analysis, I venture to believe will receive from that gentleman the only construction that its motives can be supposed to meditate in making it. One object may indeed be gained, since Mr. HONIGBERGER has already embarked upon a long and perilous journey viâ *Bakhtar* to his native land†, after having given charge of all his valuable acquisitions to Chev. ALLARD, whose prospects of returning to Europe seemed to offer a favorable passport for their transmission to Germany, but which I have since learnt is likely to be protracted indefinitely. Under such a view, the foregoing remarks, if deemed worthy of being read before the Asiatic Society, may become known in Europe through the medium of a journal which has already in these obscure regions (as will soon be shown) stimulated the development of antiquarian research, and in this immediate instance is calculated to communicate and preserve the merit of labors, which natural and adventitious causes might otherwise tend to consign to oblivion.

* There are inscriptions on the brass cylinders deposited in the topes ; see the foregoing paper.—ED.

† See note of this traveller's adventure at *Banian*, p. 246. It is fortunate that he had left his coins and relics behind.—ED.

Mr. HONIGBERGER would only have promoted his own views, had he made the Journal of the Asiatic Society a channel of publicity to his discoveries, since it is fully probable that subsequent laborers in the same field will weaken the interest of his researches, before that gentleman can reach his own country (which must be considered a problem), or the fruits of his exertions shall have quitted British India. These are destined to enrich the Cabinet of Vienna, and we may imagine the precious banquet they will afford to such eminent literary patrons as KLAPROTH and VON HAMMER.

[We thank Dr. GERARD most cordially for his zeal on behalf of the Journal, but it would indeed be presumption in us to imagine the German Doctor's coins could be better disposed of here than in the hands of the eminent men he names. We appeal to M. SCHLEGEL's note on Bactrian coins too often to allow of our undervaluing such high authority. We have been obliged for want of space to curtail the foregoing memoir, and to omit for the present Dr. G.'s remarks on the climate and country of *Kábul* and *Jelálabád*. We have said nothing on his hypothesis that these mounds are the sepulchres of kings; a theory also adopted by Mr. MASSON, but contradicted by most other authorities, who look upon them as Buddhist structures. This supposition is confirmed by the existence of similar mounds in Nipal and elsewhere, and by the very nature of the relics discovered in them.—Ed.]

III.—*Extracts from Mr. Masson's Letter to Dr. J. G. Gerard, on the Excavation of Topes, dated Tattung, 22nd March, 1834.*

The fourth tope I opened had in its centre a small chamber, with nothing therein but a little loose dust. I excavated to the very soil beneath the foundation, but nothing farther was discovered: eighteen days' labor were expended here. In the central chamber was a small cobweb with its tenant, a spider, apparently in good health and spirits. The tope was 144 feet in circumference, and how the insect got there, and contrived to live, is somewhat astonishing; if he introduced himself at the period of the erection of the tope, he must have been above 1600 years old. I know not whether naturalists will concede to his species such extraordinary longevity. The results of three other topes will be known within the three next days. Of one of them a *nishán* or token of there being something has been brought to light. Although by the experience of the fourth tope, I find that some of these structures do not contain relics, by which they may be identified, as coins, writings on leaves, &c. yet from the experience of all hitherto opened, I am confirmed in the opinion, that no one is without a sign or token of some kind, if it be only a small recess or chamber in the centre. Ultimately, a line of distinction may be formed between the topes of

sovereign princes, members of their family who did not rule, and of saints, at least it so strikes me on a *primâ facie* consideration of these monuments; but there is one misfortune, that the contents of none can be judged by the mere appearance. To ascertain them it is necessary to excavate; and tokens the most useful to antiquarian or historical research are often extracted from such whose appearance is least inviting, and vice versâ. The topes, which are well preserved, and whose outlines are clear, are also excavated at less expence, than the dilapidated ones whose outlines are faint or totally defaced. With the first the sanctum sanctorum is reached without chance of error: with the last, the direction of the excavation depends more on chance, and there is the additional trouble of penetrating through the mass of fallen materials around. The famous *Nandûrâ* tope, 164 feet in circumference, was opened in eight days; a much inferior one on the level plain, from which I now expect something, and which has a circumference only of 103 feet, has now employed the same number of men twelve days.

My search for coins at this place has been very unsuccessful; I look forward however to a glorious stock from *Kâbul* this year, and only hope that my competitors may not raise the market too high for me. I have an idea, if funds permit, to send one of my men to *Balkh* for a couple of months, for the purchase of antiques: this will moreover depend on my verifying what I have heard from two or three sources, viz. that old coins are readily procurable at that place and neighbourhood. Now that Bactrian coins excite so much attention, you may, if you please, let Mr. PRINSEP know that three years since Major TAYLOR at Bagdad had some sixteen or seventeen Bactrian silver tetradrachms, and that two gold Bactrians were procured at *Tabriz*, both or one of them by Dr. CORMICK. That gentleman's coin was stolen from him. Major TAYLOR intended his coins, with a vast number of others, for Sir JOHN MALCOLM.

I have heard nothing farther concerning MARTIN. I learn that he did not forward to Captain WADE the account of his operations on the topes of *Jelûlabûd* and *Kâbul*, which he had prepared for that purpose in Persian. When I wrote the notice on the *Beghrâ* coins, I supposed that he had sent it, as he even read it to me, and made the remark that Captain WADE might publish it if he pleased. I observed that Captain WADE was not likely to do so unless authorized by him: he therefore by a letter authorized Captain WADE to make it public. Neither one or the other was probably sent, and this I merely note in case I may have alluded to this account in the memoir, which I presumed would have been published by the Indian press. The account was simply one of the operations and discoveries, without any hint or opinion as to what age, &c. they had reference.

I have some idea of publishing a detached small volume in India, (that is Calcutta,) "An Account of the Topes of *Afghanistan*," with sketches of the whole. I apprehend that India is too limited a field to expect any extensive sale for any literary work whatever, nor do I know how the publication of works is managed in Calcutta, neither whether engravers would be found to execute the plates. Of these there would be some thirty or forty, or perhaps more. Neither am I satisfied that any one would undertake the expence of publication, nor am I sure that a publication by subscription would be sufficiently encouraged. I have set in order a general and individual account of these topes, explaining their site and identification as far as the relics extracted from them testify, with my conjectures respecting all and each of them: these conjectures involve some points of history and geography not to be avoided. I have also taken sketches of all of them, at a certain measured distance, and used a camera lucida, that their comparative dimensions in the sketches might be exactly preserved*.

I have not heard whether M. MARTIN, on being despoiled, lost his gold medal of KADPHISES: as he justly prized it he always retained it about his person, and it was the only one of his coins, excepting perhaps the silver ones of MENANDER and EUTHYDEMUS, of each of which he had one, that he did not forward by your medium to M. ALLARD. If he lost it, it is fortunate that I preserved the sketch of it. (See Pl. xiii.)

I hear nothing conclusive here of your researches at the Peshawar tope. OSMAN notes in his letter to me that the statues are very wonderful and beautiful. I trust you will have found a prize there; they are certainly a very singular discovery, and may occasion a good deal of speculation as to the nature of the monument; it will be highly interesting if their *caste* be recognizable.

I inclose a copy of the inscriptions around the *koti* or box extracted from a tope here, as noted in my last. This if you think fit may be forwarded to Mr. PRINSEP for notice in the Journal†, and he may invite those who are competent to decypher it. There must surely be individuals at Calcutta, certainly at Bombay among the Parsees, who

* We should be most happy to second Mr. MASSON's project, did we think that he could be rewarded by any sale or subscription in Calcutta. It would certainly be preferable to publish in Europe, with all the advantages of good engravers, a large reading public, and the various facilities which publishers there enjoy of interchange and communication with others of the profession at home and abroad. There is besides a heavy duty on importing into England works printed in this part of her dominions! The camera lucida sketches will be most valuable.—ED.

† See plate xxii. and the remarks in page 319.—ED.

can read the Zendavesta in the original. I should fancy a reference to the article ALPHABET in any of the Encyclopedias would exhibit the value of the Zend and Pehlevi characters. I note in a memorandum the equivalent characters of the Greek Bactrian coins to five Greek names and cognomens, and could have carried the subject farther, did time allow*.

Your messenger brought a letter for the Nuwab from *Osman*, and this caused his detention to-day. I visited the búrjes or topes in hand : the one I noted as expecting something from is not yet got through : in the centre was a kind of structure in form [as in Plate xxii. Fig 27], the bottom has not yet been reached. I hope to-morrow will produce something. The topes with these forms of inferior *gumbazes* or domes, &c. in the centre, are very suspicious ; I fear in some instances these are the only tokens they contain, and they do not give much information.

23rd March, 1834.

C. M.

IV.—*Journal of a Tour through Georgia, Persia, and Mesopotamia. By Capt. Mignan, Bombay European Regiment, Fellow of the Linnæan Society of London, and M. R. A. S.*

[Continued from p. 280.]

Speaking to Prince GALETZIN of the Russian Cavalry, who had been attached to the Count's staff in Turkey, he said, " We do not lose half so many men as you are inclined to believe ; since on the instant a man is infected, we plunge him in *iced water*, wash all his linen, and on the second day he is sure to be convalescent." That the soldiers of the Russian army should be infected, can create no surprise whatever. Their filthiness is proverbial. I once saw a regiment paraded to perform (as I imagined) their evolutions. On being drawn up in line, a serjeant stepped out to the front with a long broom, and rubbed down the men, as our grooms do horses. Had I been on the parade ground, I might have been *murdered* by an attack of lice—a second plague which has smote this land. A punishment parade succeeded this novel scene, and several offenders were brought forward. The drum-major passed down the line, and actually spat into the mouths of the prisoners. The reader is tired of a narrative so disagreeable. I can assure him, that my disgust to this nation is founded on practices that exist not amongst the most barbarous people. I leave them to their admirers.

On the morning of the 8th of February, we quitted Ganja for Zodi, distant four leagues. On leaving the town, my attention was attracted

* We shall take an opportunity of introducing these in a subsequent plate, with as many more of the same character as are now within our reach from the collections of Shékh KERA'MET ALI, and Munshí MOHAN LAL.—ED.

by a crowd of women, arranged in a circle, who appeared to be overwhelmed with grief, making a singular noise. Approaching nearer, I observed that they were sitting round a grave, and mourning the loss of a relative or friend whose remains were deposited in it. Some were howling aloud, as if suffering from acute bodily pain, and appeared to feel deeply on occasion of the loss sustained. Others however, I could clearly perceive, were acting a hired part,

—————“And live upon the dead
By letting out their persons by the hour
To mimic sorrow, when the heart's not sad.”

Scriptural passages appear to warrant the conclusion, that the posture of these females, and their manner of going through a scene expressive of grief, must have been a very ancient custom. The description given of the children of Israel, after the destruction of Jerusalem, exactly corresponds with the situation of these mourners. “The elders of the daughter of Zion *sat upon the ground*; the virgins of Jerusalem *hang down their heads to the ground.*” (Lamentations, ii. 10.) The prophet Isaiah thus alludes to the desolation of Judea. “She being desolate, shall sit on the ground.” (Isaiah, iii. 26.) And it may be added as a striking fact, that I have a Roman medal, found during my travels, that represents Judea under the figure of a woman sitting in the attitude of grief. The custom of hiring people professionally to lament obtains among the natives of Greenland.—“The women continue their weeping and lamentation. Their howl is all in one tone; as if an instrument were to play a tremulous fifth downwards through all the semi-tones.”—(Vide Crantz's History of Greenland.)

We now proceeded over an extensive plain, which had a wild heathy aspect, interspersed with irregular hills of gravel, covered with tufts of dry prickly herbage, and withered aromatic plants; among which were vast numbers of the florican, bustard, and black-breasted partridge. The latter is a very singular bird: round the eye it exhibits a warty skin; on the foot a small spur, bare and black; the forepart of the leg covered with short ferruginous feathers; and the bill convex. The male and female are of the same colour, though the former has black spots, which on the latter approach to a yellow.

After proceeding some miles, we crossed the river Kourak in front of some snowy hills, which were one untracked surface. Here, the prince, who was a keen sportsman, obtained some capital shooting: indeed all travellers pursuing this route would find many modes of dissipating the tedium of their journey, as game of every description is most abundant. Our table groaned under the wild ducks, partridges, quails, floricans, and bustards, which were daily supplied by the prince

and Mr. CORMICK his physician. We went cheerily on, over a succession of finely undulating hills and dales, till we reached our halting place at three o'clock P. M. with no more fatigue than if we had taken only a morning ride.

We left Zodi at seven o'clock next morning, still traversing the plain in a direction south 50° east. The country, though so extensive, changed nothing in its appearance, excepting that the hills stood thicker and higher. The weather was delightfully pleasant, and every thing breathed the air of spring. We proceeded along the left side of the Aligez, close to the base of its mountain-wall. Its sloping sides were thickly set with hamlets and enclosures, which produced a most delightful contrast to the regions of barren rock which pended above. Continuing our march, the plain widened between more equally undulating banks, and soon after we discovered an addition to our party in the shape of a greyhound. His service proved an acquisition, for scarcely had we seen him, ere a herd of antelopes presented themselves along the slope of the hills near the low ground. We allowed them to advance upon the plain, and then slipped the dogs. The antelopes darted before us like a flash of lightning, and the Persians halloed like thunder. The sport became both animated and delightful, and the steeds, having a fine even plain before them, kept well up. At length the chased animal finding the dogs gaining upon him, made for the hills with redoubled speed, when Prince KHOSROU, who was in the way as he repassed within musket shot, fired and so wounded him that the dogs were on him before he could traverse another fifty yards. He was placed upon the back of a mule, and proved a capital addition to our travelling stock of provisions.

We now took a descending position, due east, over a stony and difficult road; which carried us through several rocky defiles, and over the river Terter, till we reached a small Muhammedan village named Sauk Boulak. We halted there for the night, and slept under the roof of a hospitable Mussulman, who roasted a sheep whole, and gave us some excellent coffee. On the morning of the 10th, we left our kind host, who appeared glad enough to see us depart, having been frightened by the fierce looks, and glittering arms of the Prince's attendants. We set forth over a road leading due south, passing to the westward of Shesha, the capital of Karabagh. On our way, we saw several Cosack stations, where our conductor, the Russian General, changed his baggage horses. These posts consisted of a few miserable straw huts, and the soldiers appeared performing the most menial offices. As we passed along, they stood with their heads uncovered; and the people of the country likewise observing this ceremony looked ridiculous enough, since their heads were closely shorn.

This province is laid down in ancient maps as the country of the Sacaseni, a brave tribe of Scythians, mentioned by STRABO, which the learned now-a-day try to prove are from the same stock as the Anglo-Saxons. To the eastward is the province of Shirwan, the ancient Albania, the scene of so many actions of CYRUS, and subsequently of POMPEY. Not far hence, the Koor mingles its waters with the Araxes, thus forming the apex of a triangle; and the united streams, turning abruptly to the south, discharge themselves into the Caspian Sea. From a series of observations, lately made with Fahrenheit's thermometer in boiling water, at different heights, on the shore of this sea, it appears that water boils at $212^{\circ}.75$ and the barometer stood at $28^{\circ} 7' 1''$ *; hence the surface of the Caspian is 375 feet below the level of the ocean. PALLAS in his travels, speaks of the low level of the Caspian, compared with other seas. ENGELHARDT and PARROT, in their late journey to the Caucasus say, that the surface of the Caspian is 308.8 French feet beneath that of the ocean. The Koor contains a greater body of water than the Araxes, though its course is less rapid. CYRUS is said to have been murdered on its banks by the neighbouring mountaineers.

The weather, which for the last week had been so mild, became suddenly extremely cold, with a cloudy sky, and seven degrees of frost. Our track lay over an uneven plain for nine miles, when we began a gentle ascent up a hill to the south-east; and passing over its brow descended on the opposite side by a narrow and romantic path towards the river Parianzour. Following its course for two miles, we entered a deep wood. The thickets through which we plunged to reach a new ascent were covered to the depth of two feet with snow, and the difficulties our horses encountered from such insecure footing increased at every movement. The track up the height itself did not afford a more secure one, and when the ascent was gained, similar obstacles presented themselves. We had to pass along the ridge of a chain of rugged hills, whose situation exposed us to every blast, while the road itself over which we travelled some hours, was slippery and dangerous. At the end of fifteen miles, we reached Gorouzour, where some Cossack horses were changed. That done, we recommenced our march over the same rough ground, till we came up to an encampment, where we halted for the night. The portable houses of the peasantry of the country, we found comfortable enough. They cannot be called tents, although their structure is as simple. Several long rods, regularly disposed at the distance of about two feet asunder, surround a circular space from ten to fifteen feet in diameter, and form the skeleton of the walls, which are firmly tied together by bands of hair ropes, hitched round the end of

* Sic in MS. perhaps 28.71 French inches.—ED.

each rod to secure it in its position. From the upper ends of these, rods of a similar kind are bent, so as to slope to the centre, and being thus tied with ropes, form the frame work of the roof; over which is thrown a covering of black felt, leaving an aperture in the centre to give vent to the smoke. Similar coverings are wrapt round the sides, and to keep all tight, another frame is bound externally, formed of cane tied together with strong eord, which firmly unites the whole. The aperture at the top is closed, as occasion requires, by a piece of felt, which is drawn off or on by a strong cord. Our next day's journey spread a whole region of snow before us; hill and dale one dreary waste, with a sky threatening a still more deepening fall. Winter had here laid his "cold and shrouded hand" on every object: our halting place for the night was to be Koubat, about six leagues distant in a south-westerly direction. The road was better, which enabled us to reach our quarters early in the evening. It appeared a wretched place; nevertheless, I must do the natives of these wild hamlets the justice to say, that, notwithstanding the unpromising exteriors of their habitations, they evince a frank hospitality within, to be remembered with gratitude by every way-worn traveller. The description of their sepulchral-like abodes I have already given, but it may be as well to picture the interior likewise. On descending a few steps, we enter a room which fills the whole space of the house, being about eighteen feet square, an ill-proportioned size to the lowness of the dwelling. At one side we find the hearth with its chimney, and directly opposite a small aperture in the roof, to admit light and air. The earthen floor is beaten down very flat and hard; but carpets are spread when the inmates sit or sleep. No furniture of any description is to be seen. The walls are of dried mud, with recesses left in them to hold the utensils of the family. A small portion of the habitation is generally assigned to the horses, cows, or sheep, but they frequently mix indiscriminately with their masters.

We left Koubat with the cold at eight degrees of Reaumur, and quitted the now expanded channel of the Parianzour under a clear and beautiful sky. Our road led to the south-east, and a few hours' travel brought us to the banks of the river above mentioned, whose impetuous motion was staid in some places, and frozen to the depth of several inches. As we proceeded, the character of the plain gradually disappeared amongst hills, and we soon found ourselves in a narrow valley, which by degrees contracted to a rocky gorge of very steep acclivities. At the bottom ran a stream, whose waters in spring swell to an impassable height; but at the present moment they were hardly more than a rill, and flowed amongst the rocks, while we journeyed by its side, contemplating the beauty of the overhanging cliffs. We rode between

them for upwards of a mile, and then came out on a small plain, which appeared to be completely surrounded by mountains. Through an immense chasm to the east, I had a beautifully distinct view of the windings of the Araxes. Herds of antelopes were bounding over the precipitous sides of the mountains, and pheasants, which are seldom seen to the south of this river, were in great numbers. The source of this celebrated stream, which is boldly described by Virgil, "*Pontem indignatus Araxes,*" is from the mountains a little to the south of Erzeroum, (the Arze of the Byzantines,) whence it flows onwards in a serpentine course; until in gliding through the plain of Irivan, it sweeps to the southward, embracing the provinces of Irivan, Nakshiwan and Karabagh; and finishes its impetuous course in the north-east, near the castle of Kalagan, where it mingles its waters with the Koor, when both these famous rivers roll into the Caspian.

An hour more brought us to the margin of the Araxes, at which point the power of Russia ceases—*for the present*. How long this may continue to be the boundary line, and whether it be politic for us to remain inactive spectators of these rapid advances and encroachments, requires our most serious consideration. Be the intention of the Government what it may, all Russian officers, during my residence amongst them, spoke of the march against India as an ultimate object of its policy; and if we felt alarmed at the proposed attempt of the French on our eastern possessions, we should have far greater apprehensions from any similar designs of the Russians*.

Through the kindness of Prince KHOSROU'S Russian Mehmandar, we were accommodated in tents pitched upon the shores of the Araxes, as on neither side were any villages situated. The surrounding scenery was awfully wild. It was like a ruin of nature itself, as if the earth had been convulsed to her very centre, and rocks and mountains had been hurled from their foundations by the violence of her convulsive throes. In the hollow of caverns formed by these grotesque combinations, the shepherd and his flocks had taken up their residence, and secured to themselves dwellings which nothing but a similar revolution could destroy. From the verge of the stream I observed that its utmost velocity in the most obstructed channels was about six miles per hour; while

* We are compelled to omit here our correspondent's observations on the subject of a Russian invasion, as unconnected with the relation before us, and not adapted for our pages, from which the discussion of political questions has hitherto been scrupulously excluded.—ED.

through the broad and shallow passages the river ran at the rate of from three to three and a half miles an hour only, in proportion to its depth.

As the day was mild and warm, I waded through the water from one cluster of rocks to another, visiting all the little islands which obstructed the passage of the Araxes: and it must be confessed that, to the admirers of wild and majestic scenery, nothing could be more romantically picturesque. Towering mountains were formed on each side the river of immense masses of basalt and black granite, heaped one over the other, and hanging in an endless variety of fantastic forms, while their broad shadows threw upon the surface of the stream a fine deep gloom, quite in unison with the scene. In the centre of the river were again seen smaller combinations of rocks, which formed innumerable islets, over some of which the water partially flowed, while their sharp points cutting the current in its course, created foaming breakers in miniature, the murmurs of which were the only sounds that disturbed the stillness of the calm. In some of the hollows formed by the annual friction of the rising inundation, when the Araxes was at its height, a bed of rich alluvial soil had been deposited, from which had sprung up young trees and bushes, the isolated verdure of which derived a higher beauty from contrast, and appeared like little Edens encompassed by a wilderness. The very rocks themselves too exhibited all the variety of form and colour; while their adamantine surfaces, exposed to the constant stream, were worn to a smoothness of polish, which art could scarcely give to them; and by the infinite variety of their positions, reflected the rays of an unclouded sun from every point like dark steel mirrors. Here were gigantic mountains of basalt, and rose-coloured granite, the latter crossed with veins of the finest porphyry and smaller lines of brilliant quartz, changing at every yard their hue of shade, and quality of grain: while the sublime solitudes of this dark and silent valley gave to the pure canopy above a brighter blue, and produced altogether a splendid picture of nature in her wildest garb.

Such a magic combination of forms and colours could not possibly be sketched with fidelity. Were the whole to be drawn and coloured on the spot, it would require the pencil of a CLAUDE to catch the beauty and the expression of the shades which vary with every hour, from the dawn to the close of day. The sun was sinking when we returned to the encampment; and I retired to my tent as much overcome by the magnificent impressions of the scenery I had beheld, as by the fatigues of our circuitous and lengthened route of wading through the islets of the Araxes to enjoy their beauty.

The Russian General BARON RENNENKAMPFF came to take leave of our party next morning as early as the day dawned. KHOSROU MIRZA presented him with a bag containing twelve hundred ducats and two pair of handsome Cashmere shawls. The Baron's polite attentions to the whole suite were unremitting throughout: he was very desirous of crossing the boundary line, and of accompanying us to the court of His Royal Highness ABBAS MIRZA, that he might have formed the acquaintance of our highly respected envoy, Colonel MACDONALD KINNIER; but the orders of the Emperor NICHOLAS were so positive, that he could not even transport the Prince's carriage across *the river*. His fear, also, of being thought more favourable to the Persians, than to his own employers, was excessive. Born a Livonian, he was eyed with jealousy by his inferiors in rank, who, if any opportunity served, would doubtless have endeavored to injure his good name and interest with the Government. On pressing my hand he said, "The Emperor has every confidence in me at present, and I must endeavour to retain it; the Russians hate all my countrymen most cordially, because some of us hold the best appointments in the Empire."

(To be continued.)

V.—*Supplement to the Historical Remarks on the Allahabád Inscription, No. 2. By the Rev. W. H. MILL, D. D. &c.*

In enumerating the few historical names that remain of the dynasty or dynasties to which I conceive that the Allahabád Inscription, No. 2 may possibly belong, I confined myself to such as are authenticated by ancient testimony: in which I am not aware of any omission except that of two kings, whom the researches of Professor WILSON have supplied: viz. SÁHASANKA, who appears from the *Visva Prakása* to have reigned at Canouje somewhere in the tenth century: and KORA, so called by the Mahometan writers, who was contemporary with MAHMÚD GHAZNAVÍ in the eleventh*. It is however scarcely pardonable to omit all reference to a series of names with which so indefatigable an investigator as Colonel TOD thinks he has filled the chasm in question, in that most valuable and elaborate contribution to oriental and general literature, the

* To these I might add the name of VIRA-SINHA-DEVÁ, who is said, at a period somewhat earlier, to have granted to the request of A'DISÚRA, king of Bengal, the five orders of Cányacubja Brahmans, from whom the present brahmans of Bengal are descended.

“Annals and Antiquities of Rájasthán.” The Annals of Marwar contained in his last volume, might well indeed be expected to throw some light upon this subject: since it was by the remains of the Rahtore family that last reigned at Canouje, by two grandsons of the unfortunate JAYA CHANDRA, that this still subsisting principality of the solar race was fixed in Central India, near the beginning of the 13th century, and escaped for several ages the notice of the Musulman princes that had subverted the ancient Hindu monarchies of the north. The professed records of the earlier periods of the family yet remain in the hands of the bards and other dependents of these princes at Marwar: and these traditional legends always deserve attention, though they cannot for various reasons command historical belief.

These chronicles all connect in a loose manner the solar race in the person of SUMITRA (about the sixtieth from RÁMA), the last prince of Ayodhya mentioned in the Puránas, with the sovereignty of the Rahtore family at Cányacubja—thence proceeding hastily to the defeat and death of JAY CHAND or JAYA CHANDRA, and the flight of his grandsons SEOJI and SATRAM to Marwar;—after which, they begin to wear the appearance of circumstantial history. Some of them however assume an aspect of chronological definiteness at the period of NAYN PAL (NAYANA PÁLA,) whom they represent as having conquered Canouje in the year of VICRAMÁDITYA 526, or A. D. 470, from king AJIPÁLA, a descendant of AJAMIDHA, of the Lunar race, which race they represent as having held the sovereignty of Cányacubja or Gádhipura, from the fabulous times of GÁDHI, father of VISVAMITRA, to whom its foundation is generally ascribed, down to this comparatively recent period. From this NAYN PAL, the Marwar chronicles give a genealogical series of twenty generations to the unfortunate JAYA CHANDRA, thus filling the interval from A. D. 470 to 1193. Some observed incongruities in the testimony on which this series is given have not prevented Colonel TOD from attaching to the former date, and to the whole genealogy, a credit which he does not appear to give to any names preceding NAYN PAL in the same genealogical rolls. He takes it for established fact that the Rahtore family thus reigned for seven centuries at Canouje, and that this was the only principality of the solar race that ever occupied that ancient seat of Hindu empire.

The exhibition of this genealogy, as given by Colonel TOD, side by side with the testimony of indubitable Sanscrit monuments brought to light by COLEBROOKE, FELL, and WILSON, as to the actual reign of the Rahtore princes at Canouje, will bring to the test these assertions of the bards and pancgyrists of the royal house at Marwar. It will be seen that it needs not the absence of the names of YASOVARMAN and

SÁHASANKA (who certainly reigned at Canouje within the limits of these seven centuries), to prove this genealogy destitute of all historical authority.

Colonel Tod's Rajasthán.
Vol. ii. pp. 5, 6, 7.

NAYANA-PALA conqueror of Canouje—
A. D. 470, and thence surnamed
Cama-dhvaga, with all his descendants
who follow.

PADARATA or BHARATA, his son, king
of Canouje.

PUNJA, do. do.

DHARMA-BHUMBO, do. do. whose 12
brothers were also founders of great
Rajput families.

AJI-CHANDRA, do. do.

UDAYA-CHANDRA, do. do.

NRIPATI, do. do.

KENAKA-SÉNA, do. do.

SAHASRA-SÁLA, do. do.

MÉGHA-SÉNA, do. do.

VÍRA-BHADRA, do. do.

DÉVA-SÉNA, do. do.

VIMALA-SÉNA, do. do.

DÁNA-SÉNA, do. do.

MUKUNDA, do. do.

BHUDU ? do. do.

RÁJA-SÉNA, do. do.

TRIPALA, do. do.

Srí PUNGA, do. do.

VIJAYA-CHANDRA, do. do.

JAYA-CHANDRA, do. do.

Inscriptions published in the Asiatic
Researches, vols. ix. and xv.

YASOVIGRAHA, or SRÍ-PALA, whose
son

MAHI-CHANDRA, was father of

CHANDRA-DÉVA, who became A. D.
by conquest king of Ca-
nouje about 1072.

MADANA-PÁLA, his son, who
succeeded, 1096.

GOVINDA-CHANDRA, do. do. 1120.

VIJAYA-CHANDRA, do. do. 1144.

JAYA-CHANDRA, do. do. 1160.

Hence it appears, that the Marwar authorities are correct only as to the unfortunate JAYA CHANDRA, who died A. D. 1193, and his father

VIJAYA CHANDRA, who died in 1168. Respecting all his ancestors they are altogether wrong, and have expanded into seven centuries a dynasty which lasted but 120 years ; for the same inscription which relates the conquest of CHANDRA DÉVA is utterly silent as to the crown of Canouje having been his by right of hereditary descent from NAYANA PÁLA, or any other. We have therefore little reason to credit the Marwar chroniclers in the other part of their statement ; viz. that this Rahtore dynasty thus reduced to one century, was the first and only dynasty of the solar race at Canouje. It is far more probable that princes of purer descent than they (whom Colonel TOD suspects on very probable grounds to be of partly Scythian origin) occupied that seat of empire from a period at least as early as that named by their chroniclers, viz. in the fifth century, or perhaps long before it. To some of these the kings mentioned in our inscription may have belonged, whom these authorities, if admitted as true, would exclude altogether.

A greater assistance might perhaps be obtained from Colonel TOD, had he given us the Jain inscription to which he alludes in pp. 140 and 211 of the first volume of the Transactions of the Royal Asiatic Society, as written in an ancient character (very probably that of our inscription) long disused in India, but known to the Jain hierarchs, and of which he promises to the Society a key. For this inscription relates to a certain *Avanti Rája* or Lord of Ujjayiní, called CHANDRAGUPTA, and is dated in the year 427*, which if applied to the era of the great monarch of that city VICRAMÁDITYA will be A. D. 371, but if applied to the Jain era of MAHÁVÍRA will be B. C. 106. But the localities specified in the Allahabad pillar all seem to indicate a Gangetic kingdom rather than one whose centre is at Oujein.

In the line of the Chohan princes of Ajmeir, closed by the name of the heroic PRITHU-RAI, (who possessed himself in the 12th century of the ancient kingdom of Indrapristha or Dehli, only to be the last Hindu prince that ever reigned there) we find a CHANDRAGUPTA, son of MAHÁSINHÁ and grandson of MÁNIKYA-RÁI, the latter a king of some celebrity, whose date is fixed to A. D. 695. But the mention of these names, together with that of the son and successor in the kingdom, which is not SAMUDRAGUPTA but PRATÁPA-SINHA, is alone sufficient to remove all idea of this being the CHANDRAGUPTA of our inscription ; even without recurring to the decisive reason, that the *Agnikula* class of Xatriyas, to which this Chauhána family belongs, is ex-

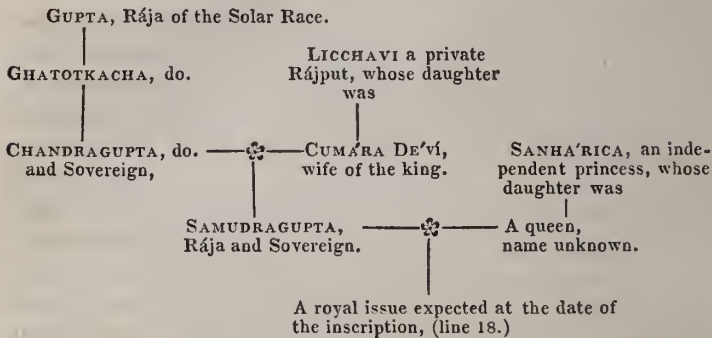
* On the second mention Colonel TOD, apparently from inadvertency, makes the date of this same monument 466, i. e. 39 years later than before.

cluded as completely as the Lunar race from the character here assigned, of "children of the Sun." The last reason excludes also a more ancient CHANDRAGUPTA who, as Colonel TOD informs us, stands *before* MÁNIKYA-RÁI, in the long line, (which he has not published) of the Chohans' descent from their remote ancestor AGNI-PÁLA : though this prince, if real, may very possibly be the Lord of Oujein who is the subject of the Jain inscription already alluded to, (T. R. A. S. vol. i. p. 140.)

The same reason prevents us from profiting by another tradition often repeated by the same learned inquirer, both in his Annals of Rájasthán and his contributions to the R. A. S. Transactions, relating to another celebrated branch of the Agni-kula Xattriyas, the Pramaras. One tribe of this Rájput race, the *Mori*, is in the habit at this day of claiming for their own the celebrated CHANDRAGUPTA *Maurya*, founder of the dynasty so called at Palibothra in the days of SELEUCUS Nicator. The account given by all the ancient Sanscrit authorities of the origin of that name is very different from this, viz. that it is the patronymic noun derived from the Sudra damsel MURÁ, of whom the king NANDA MAHÁPADMA became enamoured (being himself also of half-blood, the offspring of the Lunar prince MAHÁNANDA by a slave girl), and thus became the father of CHANDRAGUPTA, who afterwards succeeded by extirpating, with the Machiavelian Brahman's aid, his nine more legitimate brethren. This account is so universal—and it is so visible also even in the inverted accounts preserved by DIODORUS SICULUS, TROGUS POMPEIUS, and others in the west, (making SANDRACOTTUS the offspring of a queen and a barber, instead of a king and a barber's daughter) that it requires no ordinary attachment to the later chroniclers of Rájasthán to set aside these statements by making this king a member of a noble tribe of the purest Rájputs, to make him consequently unconnected altogether with those NANDAS whom he succeeded or displaced—and even to suspect the word *Maurya*, (as Colonel TOD does, T. R. A. S. i. 211,) to be an interpolation for *Mori*. There may however be a CHANDRAGUPTA to which such a tradition points with partial truth ; and such I should have suspected to be the conquering CHANDRAGUPTA of our column, but for the objection of family above stated.

Upon the whole, our researches for the subjects of this inscription in the records of Northern and Central India, seem to be hitherto unsuccessful, notwithstanding, the various CHANDRAGUPTAS that have appeared there. Of the name SAMUDRAGUPTA I have not yet seen any trace ; but to facilitate the progress of future inquiries, it may be use-

ful to exhibit synoptically the genealogical facts which the pillar supplies.



Another consideration, however, which should not be overlooked in this research, is the name of the contemporary king, mentioned in line 17 of the inscription, as having been overcome, together with several inferior princes, by SAMUDRAGUPTA. The king is called DHANANJAYA, and is described as of the race of UGRASÉNA, i. e. most probably the celebrated king of Mathura so called, the father of CANSÁ, who was slain by CRISHNA, and was, like his enemy, of the great lunar family of YADU. Now in inquiring who this king could be, the دهنجي DHANJYE or DHANANJAYA, who is mentioned by ABU'L FAZIL at the head of the royal lists of Malwa, as having founded a dynasty there about 2000 years before, should appear as much out of the question as the fabulous ARJUNA, who also bore the same name. Yet this prince, who in ABU'L FAZIL'S list (*Ayin Acbery*, vol. ii. p. 54,) has a SALIVÁHAN for his grandson—is identified by Colonel WILFORD, with a DHANANJAYA, mentioned in the royal lists of RA-GHUNÁTHA as having sprung from a temple in the peninsula of India, and thence attacked and slain a king named A'DITYA, and then reigned at Ujjayin: and on the strength of this last tradition, he is identified also with the great SALIVÁHANA himself, the founder of the era A. D. 78, because this latter is celebrated as the foe of and destroyer of the celebrated VICRAMÁDITYA! (See *As. Res.* vol. ix. pp. 134, 135, 140, 141.) The authorities from which the age, and family, and reign of this DHANANJAYA, might perhaps have been obtained, are so loosely cited by this very learned but fanciful writer, and so mixed up with his own evidently groundless and inconclusive deductions of identity, that we can derive no aid from them in determining whether he be the king mentioned on the column or not, or what could be thence safely concluded concerning the age of the inscription.

VI.—On the Influence of the Moon on Atmospherical Phenomena.

By the Rev. R. EVEREST, M. G. S. M. A. S.

Having observed one or two coincidences in the Meteorological Registers which I could not but deem remarkable, I was induced to examine them farther, in the hope of being able to furnish some rules which might be of use to those whose occupations are affected by atmospheric changes, such as the planter, the sea-farer, and others, and through them to the whole community. With this view, I have confined my observations to the chances of rain, that being the only uncertain condition in the bringing of our harvests to perfection; of heat and sunshine there is no lack at any time. In pursuance of this object, I now beg to call your attention to

The influence of the Moon in producing rain.

Having remarked that a great proportion of the spring showers fell near the time of the new moon, I drew out a table of the quantity of rain that had fallen in the first four months of each year, for eight years, (which was as far back as I could obtain the registers,) showing at the same time what number of days it fell, before, or after, the day of new moon (see Table No. 1). From this it will appear that rain fell most abundantly on the 2nd, 5th, 6th, and 7th days before the new moon, and the 6th day after it, that, out of a sum total of 34,55 inches of rain, 25,31 inches fell within seven days from the day of new moon, and only 9,24 in the rest of the lunar period, being in the proportion of 2,73 : 1, for nearly equal portions of time. If we take the quantities that fell in each year they are as follows:

	Within 7 days of New Moon.	Beyond that period.
1825.....	1.82	0.58
1827.....	1.62	1.00
1828.....	0.16	1.82
1829.....	1.72	0.00
1830.....	6.48	0.74
1831.....	5.55	1.85
1832.....	4.86	2.25
1833.....	3.10	1.00
Total,	25.31	9.24

If instead of the quantities of rain we take the number of rainy days for the same periods, we have 45 rainy days against 23, being a ratio of nearly 2 : 1. For each year the quantities are—

	Within 7 days of New Moon.	Beyond that period.
1825	8	4
1827	5	3
1828	1	5
1829	3	0
1830	9	3
1831	8	4
1832	6	2
1833	5	2
Total,	45	23

Here the days of maxima are somewhat different from what they were before, being the 3rd, 5th, 6th, and 7th days before new moon, the day of new moon, and the first day after.

Upon examining further, I found that this excess of rain towards the new moon obtained in a degree through the succeeding months, May and June, but that the ratio was somewhat altered. For instance (see Table No. 2, of Calcutta year's rain), the rain that fell in the same days, about the new moon, during a period of eight years, amounted to 83.73 inches, and for the rest of the lunar period to 52.04 inches, being in the ratio of 1.6 : 1.0. The numbers of rainy days for the above two periods respectively were 68 and 54, in the proportion nearly of 1.3 : 1. If we particularize the quantities of rain, we find that the 3rd, 6th, 7th, and 8th days before the new moon are now become maxima, as well as the 3rd, 4th, 5th, and 6th, and 10th after it. In the third division of the year, which I have confined to the month of July, the numbers approach still more a ratio of equality, the respective quantities of rain being 43.60 inches and 28.78 inches, or in the ratio of about 1.5 : 1, and the numbers of the rainy days are very nearly equal, being 61 and 60, or in the ratio of 1.017 : 1. In the fourth division of the year, which I have made to comprehend the months August, September, and October, the ratio is altered, the quantities of rain for the two periods being 96.75 and 119.39 inches, or in the ratio nearly of 1 : 1.2, and the numbers of rainy days 159 and 173, being as 1 : 1.1 nearly. The different numbers are here placed, for the sake of comparison in a tabular form.

TABLE III.	Within 7 days of New Moon.	Rest of Lunar Period.	Ratio.
1st Division,.....	25.31	9.24	2.73 : 1.
2nd Ditto,.....	83.73	52.04	1.6 : 1.
3rd Ditto,.....	43.60	28.78	1.5 : 1.
4th Ditto,.....	96.75	119.39	1 : 1.2.
<i>Number of Rainy Days.</i>			
1st Division,.....	45	23	2 : 1.
2nd Ditto,.....	68	54	1.3 : 1.
3rd Ditto,.....	61	60	1.017 : 1.
4th Ditto,.....	159	173	1 : 1.1.

Upon looking over the days of maxima in this last case, we find them to be the 3rd, 9th, and 11th, before the new moon, and the 3rd, 5th, 6th, 10th, 11th, and 12th, after. I must here observe, that the present mode of comparison is not strictly correct. As the lunar period is, properly speaking, only $29\frac{1}{2}$ days, the fifteenth day on the left hand of the table only occurs alternately. The comparison, however, is sufficient for my purpose. Taking the four periods of the year together, the inequalities may be accounted for by supposing four days to be the principal maxima : one of these being the fifth day after the new moon, and another the 9th day before it. It is true that the 9th day itself is but once a maxi-

imum in the four periods. In the early part of the year, the days immediately succeeding it are maxima, and in the latter part of the year the days immediately preceding it. If therefore any cause can be assigned why the rain at one time should be a little retarded, and at another a little accelerated, there would be no error in supposing the maximum tendency to rain to occur on the 9th day. Two other days of maxima are the 3rd day before the new moon, and the 12th day after.

With a view of ascertaining whether the Barometer was similarly affected, I next put the heights of it at sunrise for five years into a similar table, and on taking the mean of the whole year, found that the fifth day after the new moon was the minimum. (See Table No. 3). My next object was to find whether the dew points varied in a similar manner, and I therefore reduced them from the wet-bulb indications in the registers, and those of Leslie's hygrometer preceding them. The method recommended in the 1st volume of GLEANINGS being too laborious to adopt, and Major OLIVER'S tables in the GLEANINGS not having been published, I took the very simple method of multiplying the wet-bulb depression by 1.6, and subtracting the product from the temperature*. I do not mean by saying so to recommend the operation as a general rule, but only that, where the whole difference between the temperature and dew-point does not amount to more than two or three degrees (as is usually the case at sunrise at Calcutta), and the temperatures are between 80 and 50, the errors will not be important. But another and greater difficulty still occurred to me, which was this. By a copious fall of rain the dew point is immediately lowered, so that on looking over the list of dew points on different days, the day of most moisture will appear to be the driest by its having the lowest dew-point. Thus, for instance, in May, 1830, they stood as follows :

Days of Month.	22nd,	23rd,	24th,	25th,	26th,	27th,	28th.
Dew-points at sunrise, }	72.9	78.2	74.9	75.1	75.6	74.9	77.9
Rain-fall,	—	—	0.10	3.00	4.22	—	—

Here the 25th and 26th were the days of the great storm, but looking at the dew-points alone, no indication is afforded of the quantity of moisture†. Unless, therefore, we could make due allowance for the rain-fall, the dew-points alone would be a very imperfect mode of judging

* This rule would answer for an aqueous tension of 0.75 at the temperature of 90°. We think it would have been better to have used the aqueous tensions themselves, for which a table is given in the Gleanings, I. p. 81 and 340.—ED.

† When rain is accompanied with a strong wind, and that from the north, the air is seldom saturated with moisture ; the chief cause however for the fall of the dew-point is, the reduced temperature of the air during storms.—ED.

of the degree of moisture. For this reason I took only the first and last quarters of the year, when the weather is usually dry, and found the means of the different years (see table No. 4). From this it will be seen that the days of highest dew-point in the winter half of the year are the 4th and 5th, before the new moon, and the 10th and 11th, after. This was so near a coincidence with two of the maximum days of rain, (viz. the 3rd before, and the 12th, after,) that little doubt could be entertained of the one being caused by the other. That neither the other two days, (viz. the 9th, before, and the 5th, after,) were maxima might be accounted for by peculiar circumstances. At this stage of the inquiry I was led to attempt to account for the phenomena by the following considerations :

1st. By the united testimony of every observer, the quantity of moisture in the air and the rain-fall become less, as we recede from the great eastern ocean. Thus if we could obtain the mean dew-point for every degree of longitude between Delhi and Dacca, the result would exhibit almost as regular an increase as in a list of temperatures between London and Algiers. I was aware too of the great increase of dew-point here whenever the wind came from the east, and that a continuance of it was usually followed by rain. I could not, therefore, but believe that the force of attraction of the moon as well as of the sun excited an influence over the ærial currents either in modifying their direction or changing it entirely. Mr. DANIELL remarks the excess of dew-point when the wind blows from the Atlantic (he is speaking of the climate of England), and the force of attraction of the moon is stated by D'ALEMBERT to be such as would create a westerly current of eight feet in a second, (see ROBINSON'S *Meehan. Phil.*) But to render this force more apparent, we must have recourse to another consideration.

2ndly. The principal cause by which the air is affected is by the heating power of the sun, which expands a column of it $\frac{1}{150}$ th part for each degree of Fahrenheit. Upon the ocean the heat is counteracted by constant evaporation ; consequently, when a column of air, resting upon a surface of dry land, is heated by the sun, it becomes expanded, and of less specific gravity than an adjoining column in contact with the sea. Hence, as the heavier fluid will press upon and displace the lighter, a current flows in from the sea to the land. This diurnal phenomenon may be observed on almost every tropical coast. We have an annual instance of it in the great heats previous to the summer solstice, and the winds that follow them from every quarter of the ocean, the S. W. the S. E. and E., bringing with them abundant rain. This current must be strongest at the time of maximum heat of the day, and if we suppose

the moon in such a position as to act in conjunction with it, then the two forces would produce a great conjunction tide in the air. As the moon recedes eastward from the sun, it comes upon the meridian about $48\frac{1}{2}$ minutes later every day; so if the change happened at noon exactly, three days after it would be upon the meridian at 2h. 25m. P. M. As the time of maximum heat of the day is by Dr. BREWSTER 2h. 40m, P. M. we ought on this day to have the great conjunction tide, according to theory. But in comparing the actual tides of the ocean with the deductions from theory, we find that the phenomena occur one day and a half later than they ought to do; thus the greatest spring tide does not happen exactly at the conjunction of the sun and moon, but a day and a half later. Let us make a similar allowance in the case we are considering; then as the moon must be somewhat more than three days old when it is upon the meridian at 2h. 40m. P. M. add one day and a half to its age, and the greatest tide will be produced when it is nearly five days old. I venture to suggest this as the cause of the maximum fall of rain on the fifth day after the new moon, and the minimum of the barometer on that day. Of course, as air is distended and rendered lighter by being mixed with aqueous vapour, the presence of a great quantity of moisture (which would be the case in a current setting in from the ocean) is sufficient to account for the diminution of pressure.

Cor. 1st. This supposition may account for our spring showers happening as they usually do between 2 and 6 P. M. and probably at the time when the superior or inferior tides of the moon are near the meridian.

Cor. 2nd. If the supposition be true, then the excess of rain about the fifth day after the new moon will be greatest, when the heat is a maximum, when the sun is nearest the zenith, and when the moon is nearest the zenith. This would happen at Calcutta in the months of May and June. In the first four months the heating power is great, but the sun has south declination for most part of the time, and the moon too. In July the sun is near the zenith, and so is the moon, but the heating power is counteracted by constant evaporation. In the last three months of the rains the sun and moon are further from the zenith, and the heating power somewhat less than in July. I took therefore the sum of the rain that fell on the 3rd, 4th, 5th, 6th, and 7th days after the new moon, in each of the four periods, and compared each with the quantity that fell during the whole lunar period. Premising then that five days are to the whole lunar period as 10 : 59 I found the sum of rain that had fallen in the 5 days above mentioned, to be to the sum of the whole lunar period,—

In the 1st four months,.....	:	:	10	:	52
In May and June,.....	:	:	10	:	36
In July,.....	:	:	10	:	46
In Aug., Sept., Oct.,.....	:	:	10	:	51

But besides the superior or direct tide of the moon, the inferior or opposition tide of the moon would be in conjunction with the greatest heat about the 9th day before the new moon. I took therefore the 9th day with three days before and three days after it, and found the proportions the sums bore to the whole period in the same manner as above.

Seven days being to the whole lunar period,	:	:	10	:	42
The proportion was—					
In the 1st four months,	:	:	10	:	40
May and June,.....	:	:	10	:	40
July,.....	:	:	10	:	55
Aug., Sept., Oct.,.....	:	:	10	:	40

The irregularity in the case of July probably arises from a sufficient series of years not having been taken. If instead of the quantities of rain we take the number of rainy days in the same periods, they give a ratio of 10 : 40

With a view of ascertaining whether similar results were to be observed in the climate of Great Britain, I next made a table of the temperature at Edinburgh, for eight years, (from 1824 to 1831, both inclusive,) from the Edinburgh Philosophical Journal; to this I added a table for three years near London, (from Sept. 1819 to Sept. 1822,) which is to be found in DANIELL'S Meteorological Essays, and the results are as follows: (see table No. 5;) taking the days as before, (viz. the 5th day after the new moon, and two days before and two days after it,) the ratio to the whole lunar period was as follows:

In the first four months,	:	:	10	:	46
May, June, July, }	:	:	10	:	50
Aug., and Sept., }	:	:		:	
Oct., Nov., Dec.,.....	:	:	10	:	70

It was to be supposed that in a high northern latitude, in the three last months of the year, when the heating power of the sun is very small, owing to the great moisture, and also the sun and moon (when it is near the change) have southern declination, that the joint effect of the heat and attractive force would be barely perceptible. There is, however, another cause of mistake. Though the mean time of maximum heat for the whole year is 2h. 40m. P. M. yet that time varies with the different seasons; in summer it is considerably later, in winter it is considerably earlier. I have not the book to refer to, but taking the 6th day in the summer months for the centre of the maxima, instead of the fifth, after the new moon, and the 2nd instead of the 5th for the last quarter, the ratios are as follows:

In the summer months	:	:	10	:	47
Oct., Nov., Dec.,.....	:	:	10	:	58

Let us next compare the day of the moon's opposition, (viz. the 9th before the new moon,) and three days before and three days after, as was done in the former case.

The ratio of the amount to the whole lunar period was

In the first four months,	:	:	10	:	40
Summer months,	:	:	10	:	46
Oct., Nov., Dec.,	:	:	10	:	37

But taking the 13th before, instead of the 9th, (for the last quarter,) we get a ratio of : : 10 : 28

We may observe then that the amount which falls in these days near the full moon is greatest in winter, when the moon near the full has north declination. On the contrary, in summer, the amount which falls near the new moon, when the moon at that season, and that age, has north declination, is the greatest. We may recollect that in the theory of the tides the height of the tide is said to vary as $\cos^2 x$ (where x is the angular distance between the moon and zenith of the place). The above observations seem to point to a law somewhat similar. But of this I have yet to offer some further probability. I have not here compared the number of rainy days as well as the quantities of rain fallen, but they tend to the same conclusions, though less decisively. Nor have I said any thing respecting the two other maxima on the 3rd day before, and 12th after, the new moon, as I have no probable cause to allege for them.

Let us then dismiss from our minds the idea of a sphere covered with a homogeneous fluid, and substitute that of a surface partly of dry land, and partly of water, the first covered with a stratum of air nearly dry, the last with a stratum saturated with moisture; and to carry on the comparison with the tides of the ocean, let us remember that we cannot measure the actual height of the tide, as in that case, but that if an observer, situated on the border of an estuary, were to endeavour to estimate the relative intensity of the currents flowing in from the open sea, by the quantity of salt contained in the water before him, then his case would be somewhat similar to ours, when we attempt to draw a like reference respecting the aerial currents from the heights of the dew-point. If he were to endeavour to conjecture the force of the floods from the country above, by measuring the quantity of earthy matter precipitated from the water, then he might expect to approximate to the truth about as much as we do when we attempt to infer the force of the current of air flowing in from the regions of the ocean, by the quantity of water precipitated. In both cases an approximation only can be expected.

Having gone thus far, the next step to be desired was to make a comparison between the heights of the dew-points at different ages of

the moon, and the heights of the tides of the ocean on the same days. The only table I could refer to was that given us by Mr. NORON, (*Jour. As. Soc.* May, 1823,) of the tides in Bombay harbour, which answered tolerably well, as Bombay, as well as Calcutta, has considerable north latitude. The heights of the tides, day and night, both at change and full, are given there, as well as for three days after, and three days before, the day of change and full. I took, therefore, the average height of the tides in the seven days about each new and full moon, and compared them together. The first comparison was the day (or superior) tide of the new moon, and the day or inferior tide of the full moon. It was as follows :

New Moon,		Full Moon,		Ratio of day tide, New Moon, to night tide, Full Moon.	
ft. in.				ft. in.	ft. in.
12 11 Feb.	2.	..	15 2 Jan. 17.	12 11	: 17 0
13 5 March	2.	..	15 1 Feb. 16.	13 5	: 16 1
14 3 April	1.	..	15 March 16.	14 3	: 16 0
* 15 3 April	30.	..	14 5 April 15.	* 15 3	: 15 4
15 9 May	30.	..	14 5 May 14.	15 9	: 13 10
16 5 June	28.	..	15 3 June 13.	16 5	: 14 1
16 5 July	27.	..	14 3 July 13.	16 5	: 12 9
16 1 Aug.	26.	..	14 6 Aug. 11.	16 1	: 13 0
15 6 Sept.	24.	..	14 5 Sept. 11.	15 6	: 13 1
14 11 Oct.	24.	..	14 3 Oct. 10.	14 11	: 13 11
* 14 3 Nov.	22.	..	14 3 Nov. 8.	* 14 3	: 15
13 3 Dec.	22.	..	14 4 Dec. 8.	13 3	: 15 10

It will be observed, that in the winter season, when the new moon has great southern declination, and the full moon has great northern declination, (or, in other words,) comes near the zenith of the place in question (Bombay), then the new-moon tide is not so high as the full-moon tide ; but, in the summer season, when the declinations are reversed, then are the ratios of the tides reversed also. I have marked with an asterisk the places where the ratios change. But we must here notice a remarkable anomaly in the lunar theory. The ratios we have observed above ought only to hold with direct or superior tides of both new and full moon, the reverse ought to hold with respect to the inferior tides of both. For instance, if the declination of the moon were 20° south, and consequently the vertex of her superior tide in 20° south latitude, the vertex of the inferior or opposite tide ought to be in 20° north latitude. So that in places to the north of the equator, as Bombay and Calcutta, the inferior tide would be very large when the superior tide was very small. Thus at Bombay, in winter, the night, or inferior tide, of new moon, ought to be very large ; the day, or inferior tide, of full moon, very small : but on comparing them together, we find the reverse.

New Moon, Night.		Full Moon, Day.	
ft.	in.	ft.	in.
14	6	15	2
14	2	15	1
14	8	15	0
14	3	14	5
14	6	14	5
14	5	15	3
14	6	14	3
14	8	14	6
14	6	14	5
15	5	14	3
15	6	14	3
15	3	14	4

I have noticed this because, by supposing a similar anomaly in the case of the tides of the air, we may explain why the ninth day before new moon has a less proportionate rain-fall in summer, (when the moon at that age has usually south declination,) than it has in winter, when the moon at that age has north declination; and vice versâ, why the fifth day after new moon has a greater excess of rain-fall in summer, when its moon has north declination, than in winter, when its moon has south declination. Were the lunar theory correct, the excess in one tide, owing to the moon's declination, would be compensated by the defect in the opposite tide. Similar anomalies commonly prevail. Thus we read, "At Brest when the moon has great declination the superior tide may be three times greater than the succeeding, or inferior tide; but the fact is, they differ very little. M. LA PLACE says, they do not differ at all."—(Mechan. Philos. iii. 365.) But to return to the matter before us. Having made out a table of the dew-points at Calcutta for 1832, I selected the heights of the same days as are stated in Mr. NORON's paper of the Bombay tides, and took the average in the same way. Comparing the times of new and full, the numbers were

New.	Full.
53·1	46·3
54·3	62·1
66·8	59·2
74·5	72·9
78·1	77·6
77·5	74·9
77·6	76·2
77·3	77·0
75·3	76·4
73·2	74·5
58·8	64·3
51·5	58·0

But as the heating power of the sun (as the year advances) must affect the current of air, and consequently the dew-points, whereas the tides of the sea are affected wholly by the attractive forces of the sun and moon, no correct comparison can be drawn between them. Thus the first item under "Full" is 46.3, which is less than the item under "New," 53.1. But it may be said, that the time of the average 46.3, is near 15 days earlier than that of the corresponding average 53.1; that as the dew-points increase with the year from January to June, owing to the heat principally, the item under "Full" (46.3) is less than that under "New" (53.1), owing to its being so much earlier, and consequently less affected by the heat of the sun. To obviate this difficulty, we may remark that, if the first item under "Full" is 15 days earlier than that under "New," the next item below it (62.1) is fifteen days later; the mean between them therefore would correct any discrepancy arising from increase or decrease of heat in either case.

Proceeding in this manner, i. e. taking the mean of each number in succession with the one below it, in the column headed "Full," the comparison becomes as follows. I have placed the Bombay tides of the same period in the same line, that the agreement may be more apparent.

Dew-points; Calcutta.		Tides, in Bombay Harbour.			
New moon.	Full moon.	New (Day).		Full (Night).	
		ft.	in.	ft.	in.
53.1	54.2	12	11	17	0
54.3	60.7	13	5	16	1
66.8	66.1	14	3	16	0
*74.5	75.2	*15	3	15	4
78.1	76.2	15	9	13	10
77.5	75.5	16	5	14	1
77.6	76.6	16	5	12	9
77.3	76.7	16	1	13	0
75.3	75.4	15	6	13	1
*73.2	69.4	14	11	13	11
58.8	61.9	*14	3	15	0
51.5	52.2	13	3	15	10

Disclaiming then the wish of speaking positively on a subject where no decisive proof has been adduced, we may yet be allowed to assert, as exceedingly probable, that the dew-points, upon the whole, vary with the declination of the moon, and in the same manner as the tides of the sea do.

I have been induced to publish the above remarks from having seen a popular notice of M. ARAGO's paper on lunar influence. One of the first remarks is, that the number of rainy days is increased by the moon's perigee. The number of rainy days in apogee being to those in perigee : : 1069 : 1169. This would agree very well with the notion of

the atmospheric currents being acted on by the attractive force of the moon*. The barometer is next alluded to, but the circumstance of the specific gravity of air being diminished by its being mixed with aqueous vapour, must tend to render very uncertain any deductions from inequalities of pressure alone.

Medical men will be able to judge, whether the recurrence of a very high dew-point, or in other words, of great moisture, at certain fixed days in the lunar period, is sufficient to account for the recurrence of certain diseases, in the manner they have been observed to do since the earliest ages. I have now merely to add the several tables alluded to in the text, of rain-falls, dew-points, and barometric heights.

I subjoin a table of the most remarkable storms and falls of rain, which, whatever may be thought of the theoretical suggestions, I hope will be of use.

[We put every confidence in the tables and in the abstracts of them drawn up by our correspondent, but we regret that in calculating some of them he should have selected those columns of the meteorological registers, which were perhaps the most liable to irregularities. At the hour of sunrise, for instance, the mercury of the barometer is in motion : the chance of punctuality in the observer is less (we allude here to the registers of the Surveyor General's Office, where the observer did not reside on the premises) ;—and the light for reading off is bad. Again, at that hour the depression of the wet bulb thermometer is at a minimum, and least trust-worthy for shewing the hygrometric effects of aerial currents, which are also at that hour generally lulled and quiescent. The aqueous tension calculated from the depressions, or if that be too troublesome, the indications of the hair hygrometer, which is not affected by heat, would best answer the purpose desired. But we would venture to suggest that the barometer alone is sufficient, particularly if observed at its hours of rest, its maximum or minimum at 10 A. M. or 4 P. M. to point out the lunar influence if perceptible, on the atmosphere : for its indications are alike affected by the direction of the aerial currents, the moisture present, and the diminution of gravity :—besides which its march in other respects is so regular in these latitudes, that upon a long series of averages very small anomalies ought to be discoverable. It will be seen, from the proceedings of the Asiatic Society on the 2nd July, that M. ARAGO has applied through the French Government for copies of all meteorological registers kept in Calcutta, probably with a view of solving this very question of lunar influence :—The registers have been furnished, and we shall take care to add a copy of the present laborious and useful analysis.—ED.]

* Rain falls most abundantly about the second octant, which also agrees with our selection of the fifth day after as a maximum.

TABLE

Shewing the quantity of Rain that has fallen in the first four months of each

○	Before New Moon.														
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
*1825, .....	.....	.....	.....	.....	0.04	.....	0.08	..	0.08	.....	.....	.....	0.02	.....	.....
1827, 0.02	.....	0.30	.....	.....	.....	.....	.....	.....	.....	.....	0.04	0.46	.....	.....	.....
1828, .....	.....	.....	.....	.....	.....	1.08	0.10	.....	.....	.....	.....	0.16	.....	.....	.....
1829, .....	.....	.....	.....	.....	.....	.....	.....	.....	1.40	0.07	.....	.....	.....	.....	.....
1830, .....	.....	.....	.....	.....	.....	.....	.....	.....	0.04	0.96	.....	.....	2.50	.....	.....
1831, .....	.....	.....	.....	0.25	.....	.....	.....	.....	.....	1.80	0.30	0.37	0.38	.....	.....
1832,	1.65	.....	.....	.....	.....	.....	0.60	..	0.60	1.71	1.32	.....	.....	.....	0.55
1833, .....	.....	0.10	.....	.....	.....	.....	.....	.....	1.36	1.30	.....	.....	0.14	.....	.....
Total,	0.02	1.65	0.40	0.25	0.04	1.08	0.78	..	1.96	4.45	4.15	0.34	1.15	2.88	0.55

Number of Rainy Days

1825, .....	.....	.....	.....	.....	1	.....	1	..	1	.....	.....	.....	1	.....	.....
1827, 1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	2	.....	.....	.....
1828, .....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	1	.....	.....	.....
1829, .....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....
1830, .....	.....	.....	.....	.....	.....	.....	.....	.....	1	2	.....	.....	1	.....	.....
1831, .....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	1	1	1	.....	.....
1832,	1	.....	.....	.....	.....	1	.....	1	2	1	.....	.....	.....	.....	1
1833, .....	.....	.....	1	.....	.....	.....	.....	2	1	.....	.....	1	.....	.....	.....
Total,	1	1	1	2	1	1	3	0	4	5	5	2	6	1	1

* Only the first three months of 1825 are set down.

TABLE

Shewing the quantity of Rain which fell in each season of the

○	Before New Moon.														
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1st 4 months,	0.02	1.65	0.40	0.25	0.04	1.08	0.78	..	1.96	4.45	4.15	0.34	1.15	2.88	0.55
May & June, ..	1.78	1.53	5.41	4.24	1.63	3.18	1.71	7.04	7.22	6.76	2.30	5.54	8.61	1.08	4.97
July, ..	1.88	1.37	2.52	0.77	3.13	0.66	0.53	1.34	3.59	2.81	2.44	0.30	5.67	1.10	4.22
Aug. } ..	1.91	6.55	5.26	7.33	9.40	6.60	10.20	6.22	6.84	5.95	4.53	5.12	10.27	2.47	2.05
Sept. } ..															
Oct. } ..															

Number of Rainy Days

1st 4 months,	1	1	2	1	1	1	3	0	4	5	5	2	6	1	1
May & June, ..	2	5	5	6	6	5	4	6	7	5	4	8	6	3	4
July, ..	3	4	5	3	6	5	2	4	5	5	4	3	5	2	5
Aug. } ..	5	10	12	11	13	14	11	10	8	9	10	12	13	8	8
Sept. } ..															
Oct. } ..															

NOTE.—The days of maxima are marked with an asterisk, that they may meet the period, but not such as to invalidate the results.

No. 1.

year for eight years ; and the distance of it from the day of New Moon.

After New Moon.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
.10	0.10	0.90	0.60	....	0.02	....	....	....	....	....	....	0.40	0.06	...
....	0.12	0.14	....	0.92	....	....	....	....	....	0.68	....	....	....	....
....	....	....	....	....	....	0.25	....	....	....	....	0.14	....	0.15	0.35
0.08	0.30	....	....	0.44	0.16	2.00	....	....	0.08	0.36	....	0.30	....	....
0.45	0.05	....	....	....	....	2.20	....	....	0.76	0.54	....	0.30	....	....
0.68	....	....	....	....	....	....	....	....	....	....	....	....	....	....
0.30	....	....	....	....	....	....	....	0.90	....	....	....	....	....	....
1.61	0.57	1.04	0.6	1.36	0.18	4.45	..	0.90	0.84	1.58	0.14	1.00	0.21	0.35

in the same period.

2	1	1	1	....	1	....	....	....	....	....	....	1	1	....
....	1	1	....	1	....	....	....	....	....	1	....	....	....	....
....	....	....	....	....	....	1	....	....	....	....	1	....	1	1
....
1	1	....	....	1	1	1	....	....	1	1	....	1	....	....
2	1	....	....	....	....	1	....	....	1	1	....	1	....	....
1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1	....	....	....	....	....	....	....	1	....	....	....	....	....	....
7	4	2	1	2	2	3	..	1	2	3	1	3	2	1

No. 2.

year in Calcutta, and their distances from the day of New Moon.

After New Moon.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.61	0.57	1.04	0.60	1.36	0.18	4.45	..	0.90	0.84	1.58	0.14	1.00	0.21	0.35
2.08	4.03	3.40	9.98	7.87	8.36	6.72	4.81	3.91	1.10	7.26	1.39	5.02	1.50	5.34
3.38	1.60	2.53	0.59	4.10	5.24	0.98	4.80	2.56	3.86	2.71	0.50	0.66	4.43	1.46
3.52	7.11	6.83	12.62	5.53	9.47	8.13	6.31	7.51	6.61	12.68	11.07	11.98	9.64	6.43

in the same period.

7	4	2	1	2	2	3	....	1	2	3	1	3	2	1
3	4	3	7	7	5	5	4	3	2	5	4	3	4	7
5	5	3	2	4	4	3	6	5	6	2	4	2	7	2
7	9	8	15	11	10	16	15	11	11	14	14	11	16	10

eye more readily. P. S. some incorrectness has since been discovered in the 4th

TABLE

Shewing average height of Barometer at Calcutta,

Before New Moon.

Years.	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1827, ..	824	813	807	786	783	782	777	769	779	780	759	769	802	807	
1829, ..	795	773	767	769	770	775	777	769	745	732	748	736	751	734	
1830, ..	770	768	766	769	788	788	802	800	803	843	809	794	783	774	
1831, ..	782	751	744	756	757	744	753	754	751	753	746	761	748	759	
1832, ..	788	798	808	815	814	803	791	787	754	785	797	785	783	765	
Mean, ..	792	781	778	779	782	778	780	776	766	779	772	769	773	768	

TABLE

Shewing average Dew-points at Calcutta, for the first and last quarters

1st and last quarters.	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1827, ..	66.8	61.0	60.8	59.7	58.7	60.2	62.6	62.6	57.5	59.7	60.8	60.2	59.0	59.5	
1828, ..	61.2	61.4	60.9	62.5	63.3	64.9	59.6	60.4	61.1	61.4	60.9	60.7	59.9	60.7	
1829, ..	63.1	61.9	62.3	63.7	62.4	61.8	61.8	63.2	63.5	65.7	64.6	62.0	63.7	64.1	
1830, ..	62.5	63.7	62.9	63.9	61.1	61.8	61.9	61.8	64.3	64.7	65.0	64.8	66.7	65.0	
1831, ..	60.3	60.3	60.3	60.2	62.4	62.5	64.5	65.3	66.1	65.2	64.1	65.7	65.2	63.9	
1832, ..	61.7	60.5	61.6	60.5	61.1	59.9	60.1	58.6	61.0	62.2	59.8	59.8	58.4	59.8	
1833, ..	66.5	67.1	66.5	64.6	61.7	65.7	65.1	63.2	65.7	65.2	65.9	64.2	63.4	64.2	
Mean, ..	63.1	62.3	62.1	62.1	61.5	62.4	62.1	62.1	62.7	63.4	63.0	62.5	62.3	62.5	

TABLE

Shewing quantity of Rain fallen near London, from Sept. 1819, to Sept. 1822,

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1st 4 months,	0.73	1.25	2.47	2.91	0.97	1.54	2.51	4.92	2.23	2.02	1.48	1.16	1.86	3.61	2.43
Five summer months,	1.04	3.96	4.74	4.55	2.69	4.16	3.35	3.23	2.43	4.87	2.93	3.28	2.64	5.87	5.95
Last 3 months,	3.51	1.72	5.45	2.28	2.72	2.74	3.44	1.62	3.26	2.95	2.05	3.35	1.58	1.52	2.36

No. of Rainy Days in

1st 4 months,	4	11	15	14	9	11	14	14	14	15	14	14	13	17	14
Five summer months,	10	16	19	20	23	23	22	20	15	15	19	19	19	19	16
Last 3 months,	9	12	15	13	23	14	14	12	15	11	13	9	12	11	14

TABLE

Shewing the most remarkable Storms and Falls of Rain that

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1823,	1	2	.....	.....	3	.....	.....	.....
1826,	16	.....	.....	7	8	.....	9	10	11	.....	.....
1827,	21	.....	.....	.....	.....	20	.....	.....	.....	.....	.....	.....	.....	.....
1828,	23	.....	.....	.....	.....	.....	.....	.....	.....	.....
1829,	32	.....	.....	.....	.....	26	34	.....	29	30	.....	.....
1830,	41	.....	43	.....	39	.....	.....	.....	.....	35	40
1831,	52	53	45	.....
1832,	54	.....	.....	.....	.....	.....	.....	.....	55	56	.....	59	.....	.....
1833,	66	.....	62	.....	.....	.....

1. 2.68 in. rain, Sept. 25—2. 4.60 do. Sept. 26—3. 2.14 do. Aug. 2—4. 3.32 do. only months of 1823, of which the Registers are to be found)—7. 4.06 in. rain, May 9—13. 2.06 July 13—14. 4.48 June 15—15. 2.36 Aug. 4—16. 3.66 Sept. 20—17. 4.40 5.40 Sept. 20—23. 1.08 Jan. 6—24. 2.20 Oct. 14—25 3.04 Oct. 16—26. April 26, 1.4 wind—30. 6.29 June 28—31 2.25 July 5—32. 2.05 Aug. 16—33. 4.60 Sept. 29—29. 4.22 and do. May 26—32. 2.80 May 15—40. 2.15 June 19—38. 2.90 June 25—41. 2.20 288 June 13—47. 305 June 14—48. 285 June 18 49. 2.00 June 20—95. 252 July 8—48 and Nov. 1—54. 1.65 Feb. 11—55. 1.18 March 26—56. 1.32 March 27—57 2.63. Aug. 7—60. 165 and do. Oct. 8—61. 146 Nov. 1—6.200 May 15—63 May 21, 2.90 and hea-13—67. 2.34 Dec. 21. *Note*—Where two numbers have been used in the same place

No. 3.

at sun-rise, on every day of the Moon's age.

After New Moon.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
794	779	779	757	759	758	754	751	781	769	777	789	806	810	816
750	737	750	758	761	741	805	783	788	808	794	787	812	807	785
779	758	754	768	739	713	768	773	802	781	789	784	784	776	784
772	782	779	787	794	790	800	785	785	786	786	802	809	823	816
756	749	752	752	753	757	759	776	779	790	794	789	777	772	785
770	761	763	764	761	752*	777	774	787	787	788	790	798	798	797

No. 4.

of the Fall, with distance from New Moon (taken at sun-rise).

60.5	58.1	59.9	60.9	61.2	58.9	64.0	64.8	63.7	60.7	61.4	63.1	60.5	60.1	60.4
62.3	61.6	63.7	63.6	63.5	63.3	66.1	66.2	67.3	67.6	68.8	66.7	62.5	61.1	62.2
62.8	65.0	63.3	62.2	61.1	62.6	62.7	63.0	62.0	61.3	61.0	60.8	61.1	61.1	59.5
63.9	63.8	62.7	62.3	63.2	63.5	62.	61.7	60.6	63.4	61.5	62.2	62.5	61.9	63.1
62.6	63.7	61.4	62.6	62.5	61.1	62.2	62.4	62.9	64.1	67.2	65.9	64.4	65.7	62.5
58.4	58.7	59.5	59.8	61.8	58.5	58.9	57.5	60.9	60.2	58.	58.	59.1	59.3	59.1
64.0	67.0	65.6	64.3	62.1	63.6	62.6	64.	62.6	65.3	67.	68.	67.8	67.0	65.7
62.1	62.5	62.3	62.2	62.2	61.6	62.6	62.8	62.9	63.2	63.5	63.5	62.5	62.3	61.8

No. 5.

inclusive, and at Edinburgh, from beginning of 1824, to end of 1831.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2.52	3.29	1.84	2.79	1.89	2.99	2.31	4.54	2.48	1.70	2.45	2.33	3.06	2.64	1.16
1.58	4.91	2.53	3.32	5.49	4.98	3.85	5.89	4.63	2.86	6.11	7.40	3.16	3.92	2.22
3.06	2.33	1.71	3.34	1.69	1.29	1.92	1.90	2.63	1.24	1.86	2.96	2.06	1.34	1.07

the same period.

12	16	13	12	12	15	11	12	13	12	12	16	18	17	9
19	22	16	16	19	23	22	23	27	16	25	23	19	19	18
15	12	12	13	5	10	11	12	14	11	9	14	10	14	9

No. 6.

have happened in Calcutta in the following years :

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	5	6	.....	.....
.....	15	.....	.....	.....	12	.....	.....	.....	13	14	.....	.....	.....	.....
.....	22	.....	.....	.....	.....	17	18	.....	.....	.....	19	.....	.....	.....
.....	.....	.....	.....	.....	.....	24	.....	.....	25	.....	.....	.....	.....	.....
.....	27	.....	33	.....	31	.....	.....	.....	.....	.....	.....	28	.....	.....
.....	.....	.....	.....	37	38	36	42	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	46	47	51	44	.....	48	.....	49	.....	.....	.....	50
.....	.....	.....	.....	.....	.....	.....	.....	61	.....	.....	.....	57	58	60
65	.....	63	64	.....	.....	.....	.....	.....	.....	67	.....	.....	.....	.....

Aug. 16.—5. 2.56 do. Aug. 17—6. 3.00 do. Aug. 18. (Note. Aug. and Sept. are the 28—8. 2.03 May 29—9. 2.16 June 30—10. 2.4 June 1—11. 2.26 July 1—12. 2.54 July June 29—11. 3.72 June 30—19. 4.45 Aug. 3—20. 202 Aug. 13—21. 3.58 Sept. 6—22. and strong wind 27. 2.18 June 2—28. hurricane and 3.55 June 13—29. 27, violent 3.30 Oct. 22—35. 2.50 April 20—36. 2.00 April 28—37. 3.00 and storm May 25—38. July 8—42 3.90 July 26—43. 2.03 Sept. 7—14. 2.20 April 18—45. 2.00 June 9—36, 2.10 Aug. 16—50. 3.12 Sept. 20—51. 2.35 Oct. 11—52. 53. storm and rain, Oct. 31 8—53. 3.00 Aug. 9—59 2.97 Aug. 23—57. 1.71 and storm Oct. 6—58. 354 and do. Oct. vy storm, 64 May 22 5.34 and do.—65 July 17, 2.14 6.3 2.0 Aug. 17—66. 2.28 Oct. the last is referred to with a dot over it, thus 45.

VII.—On the Measurement of the *Ilahy Guz*, of the Emperor Akber.

By W. CRACROFT, Esq.

[In a letter to the Editor.]

In the determination of the *Ilahy guz*, given in your useful tables with the June number of the Journal, I observe that Colonel HODGSON has deduced a length of 33.58 inches from the average measure of the marble slabs of the pavement of the Taj at Agra, and that other lengths which he has deduced from that building, vary from 32.54, to 35.8, a difference of 3.26 inches, or nearly one-tenth of the whole measure. Government having fixed 33 inches as an arbitrary value of the *Ilahy guz*, it is no longer an object of importance in point of practice to seek further for its original length; it may still however be a matter of curiosity, and as that deduced from my own measures of the marble slabs of the Taj, and other parts of the building, (made at the Colonel's request in 1826,) differs from his very much, I send you the detail of my measurement, which you can publish whenever more interesting matter be not at hand. I made use of a surveyor's measuring tape, the error of which I ascertained by marking off lengths of a well executed 2-feet brass scale, by WATKINS, on the terrace of a verandah, with a fine black-lead pencil, carefully covering the pencil marks at each division by the assistance of a magnifying lens, and obtained the following, taken off with hair compasses and measured on the diagonal scale.

	feet.	error of tape.	ft.	error.	ft.	error.
At	56	0.93	58	1.00	60	1.00
	57	0.95	59	.95	65	

All my longest measures, from 44 to 49 slabs, being within these numbers of feet, the error has been assumed at one inch in 60 feet, or 1.720 part of the whole, and is additive, the tape being too long, and giving the lengths less than they really were.

Measures on the east side of the Taj,				South side of the Taj				
Direction North and South.				Direction East and West.				
	Slabs.	feet.	inches.		Slabs.	feet.	inches.	
	1	45	60	2.5	10	49	65	4.8
	2	45	60	1.5	11	49	64	1.8
	3	46	61	3.5	12	49	65	0.5
	4	44	58	7.3	13	49	65	0.2
	5	46	61	3.5	Direction N. and S.			
	Direction E. and W.			14	45	60	1.7	
	6	48	63	6.8	15	45	60	1.2
	7	48	63	8.2	16	45	60	2.0
	8	48	63	8.6	17	45	60	3.1
	9	49	65	2.9	18	45	60	1.2
In other parts of the pavements.								
	19	46	61	6.5	22	49	65	1.5
	20	49	65	0.6	23	49	65	2.0
	21	49	65	1.4	24	45	60	2.5

which give 1127 slabs, equal to feet 1501 00.8 in. of the tape, or adding its error, to 18036.8 inches, and the *Ilahy guz*, 32.012 inches.

To this length, however, it appears to me that a correction for the mortar should be applied, as it is more probable that the marble slabs were cut to half a guz, than laid down by that measure; and from various observations, I assume this quantity at 0.03 inch between each slab, or 0.06 inch. for the guz, leaving 31.952 inches for the deduced length. I am the more satisfied that this correction is necessary, from having observed in several places, larger slabs of marble laid down, with grooves cut in them to match the junctions of the small slabs, and at the end of all of which a space had been left and filled up with mortar, equivalent to the accumulated excess of length caused by the mortar between the slabs of half a guz, and proportional to their numbers. I measured some of the larger slabs, and found their lengths as follows :

	guz deduced from each stone	
	in.	in.
A stone of four guz,	128.4	32.2
A stone of two guz,	64.0	32.0
A square stone of 1 guz,	31.8	31.8
Another,	31.8	31.8

the average of the whole giving exactly 32.0 in the *Ilahy guz*.

Assuming then 32 inches to be a very near approximation to the real *Ilahy guz*, it is worthy of observation that almost every principal apartment, or part of the building, has been planned in an integral number of guz: thus each face of the inside of the principal octagon under the central dome is 24 feet = 288 inches, which is exactly equal to nine guz of 32 inches, and the north-east boorj on the river terrace is 16 feet in diameter = 192 inches = six guz of 32 inches. I am therefore of opinion, that the average length of the *Ilahy guz* was, at the time of the building of the Taj, as nearly as can be now ascertained, a minute fraction below 32 English inches.

The two first data, chosen by Mr. HALHED, viz. the measure of an average of barley-corns, or of Musoori pice, appear to me less liable than most others to error, and the mean of these is 31.93 inches. It is probable that the length 2460 barley corns, or 400 pice, divided by 10, would give a still nearer approximation.

[We think the argument deduced from the measurement of the apartments being integrals of the guz to be conclusive, for it is the native mode of laying down the ground plan of a building always to divide the paper off into squares of some unit of length:—See the plan of the Visvesvur Shiwala in PRINSEP'S Illustrations of Benares, first series. In that building the unit was also one guz, but it was the *mairdree* guz, of about 26 inches, still commonly employed in the town. From similar measurements of other ancient buildings, Muhammedan and Hindu, might thus be obtained with tolerable accuracy the value of linear measures of different periods.—ED.]

VIII.—*Proceedings of the Asiatic Society.**Wednesday Evening, the 6th August, 1834.*

The Reverend W. H. MILL, D. D. Vice-President, in the chair.

Monsieur FERDINAND RENAULD, proposed at the last Meeting, was elected a member of the Society.

Mr. M. LARRULETA, at his own request was allowed to withdraw from the Society.

Read a letter from H. T. PRINSEP, Esq. General Secretary to Government, returning thanks for the Meteorological Registers furnished in pursuance of the resolution of last Meeting.

Dr. J. TYTLER addressed the meeting in explanation of the delay which had occurred in the reply of the local committee of the Oriental Translation Fund to the reference of last April, regarding the publication of Mr. YATES'S *Nalodaya*.

But two members of the original committee now remain in India, and the funds were lost by the failure of MESSRS. MACKINTOSH and Co. It was out of their power therefore, to patronize the work to the extent that would be required for its publication in India: and the committee did not feel authorized to pledge the fund at home to adopt the work as one of its own series if printed in India, although such might probably be the event.

Mr. J. PRINSEP moved, seconded by the Vice-President, that the Asiatic Society should subscribe for fifty copies at 12 rupees, as suggested by the author.

Baboo RAM COMUL SEN, seconded by Mr. PRINSEP, moved as an amendment that twenty-five copies would be sufficient for the purposes of distribution to those Societies entitled to receive a copy of the Society's works. The amendment was carried by a majority of 2.

Library.

Read a letter from EDWARD T. BENNETT, Esq. Vice Secretary of the Zoological Society of London, forwarding a copy of their proceedings, April—December, 1832.

Read a letter from Raja KALIKISSEN, forwarding on behalf of Nawab IQBAL-OD DOWLUH BULADOOR, a copy of his work, called "*Iqbal-e-furung, or British Prosperity*," accompanied by a literal translation into the English.

Read a letter from NASMYTH MORRIESON, Esq. W. S. presenting a copy of his work entitled "*Hints on the Trisection of an Angle and the Duplication of the Cube in Elementary Geometry*."

The second part of the *Christa Sangita*, by the Rev. W. H. MILL, D. D., published at the Bishop's College Press, was presented—*by the Author*.

Meteorological Register for June, 1834, *by the Surveyor General*.

Madras Journal of Literature and Science, No. 4, *by the Madras Literary Society*.

The Calcutta Medical Journal for July—*by the Editors*.

Museum.

An image of Buddha in fine preservation, dug up in the neighbourhood of Kabul, was presented in the name of Dr. J. G. GERARD, through the Hon'ble Sir C. T. METCALFE, V. P. &c.

A paper was read, drawn up by Munshi MOHUN LAL, who accompanied Dr. GERARD, explaining the circumstances of the discovery of this image, from which the following is an extract.

“ South of the town of Kábul, two miles distant, a range of rugged and barren mountains commands the ruins of the ancient city, which shews nothing curious but a heap of dust mingled with stones and bricks. In the rainy season the poorer class of people rove about and search the place day and night, and their labours are rewarded by finding small silver and gold leaves bearing the figure of the sun and moon upon them; sometimes they possess themselves of cows and deers made of stone or copper of a very small size but beautiful form. While we remained at Kábul we employed our time in digging the antiquities and the graves of the old inhabitants of that country, which are said to be both Bactrians and Buddhist, but unfortunately none of the mausoleums favored us with any coin or writing by which we could prove the descent of the buried. However some of them contained earthen lamps full of small pieces of bones and also rotten pearls, which confirm the dead to have been idolators. The Hindoos both of the present and former days who believe in the multiplicity of Gods, maintain a peculiar custom of filling the mouth of their deceased with pearls and also with coins. All these monuments flourish at the skirt of the same hill which views the ruins of the ancient city.

On the 7th of November, 1833, we hurried down to the above place, and hired nine men to dig the earth till the day closed, but our labours were fruitless; from the 8th to the 19th of the same month, we continued our operations, and during which space the diggers were checked by a close work of lime structure. We told them to break through it, and after digging seven paces further, they opened in a large and beautiful roofed square; it must have remained long in such a state of preservation that one might suppose that it was freshly plastered with lime. The cell was handsomely gilt and coloured by lapislazuli, which is found in considerably quantities in the mines of Badakhshán, 12 days' journey from Kábul: such was the situation of the place where we found the stone image lying on the ground.”

The figure represents Buddha in the usual sitting posture of tranquil repose, clothed to the neck in a thin flowing drapery; flames of sacred fire appear on his shoulders, and a circular glory surrounds the whole, serving as a field for the sculpture, for it is an alto relievo: upon the glory are carved two angels bearing chattas, and on each side a small group representing some acts of Buddha's life: in one he seems to be distributing charity, in the other he is receiving the homage of his worshippers.

We shall take an early opportunity of inserting a sketch of this sculpture, which is highly important from its apparent connection with the history of the Afghan topes.

A letter from Lieut. E. C. ARCHBOLD, Bengal Light Cavalry, dated Bombay, 5th July, 1834, announced that he had forwarded to the Secretary, as a present to the Society, an Egyptian mummy.

The mummy was obtained with some difficulty from the tombs of the kings at Gourvah. The native crew on board the ship which brought Lieut. A. from Mocha, having objected to receive the Mummy with his baggage, he had been under the necessity of requesting one of the officers of the Sloop of War Coote to bring it

onward to Bombay, whence it will be forwarded to Calcutta by the earliest opportunity.

Mr. TREVELYAN introduced Munshi MOHUN LAL to the Vice-President and Members, who proceeded to exhibit the articles brought to Calcutta by him, of which many were presents to the Society from Dr. GERARD.

The collection consisted of ancient coins ; seeds of fruits, flowers and trees from Kábul ; the sculpture already noticed ; and specimens of the manufactures and natural productions of Afghanistan.

Among the coins were the usual variety of Indo-Scythic and Bactrian now so familiar to us : one very beautiful silver tetradrachm, of EUTHYDEMUS, attracted peculiar attention from its rich relief and exquisite workmanship. Several of the copper moneys of APOLLODOTUS, MENANDER, the AGATHOCLES of Masson, HERMÆUS, KANERKOS, KADPHISES, &c. had very legible inscriptions. These coins had been procured in various places on their route through the agency of MOHUN LAL for Dr. GERARD, but he had unfortunately omitted to notice the localities in which each variety was most prevalent.

The box of seeds was made over on arrival, to Dr. WALLICH, who has examined them with care, and has selected a portion for transmission to the colony of Van-Dieman's Land, where they are likely to thrive and become a valuable acquisition, for the fruit of Kábul is proverbial for its excellence and variety.

The specimens of cloth, silk, carpet, chintz, of the countries passed through on the return of the travellers from Meshid to Kábul may be useful to the commercial community.

Extracts from the journal regularly kept by MOHUN LAL, in *English*, from the day he joined Lieut. BURNES's party were read. They evinced very respectable fluency in the English language, and a laudable and lively curiosity into the new objects and the manners of the people among whom he was travelling for the first time and at so early an age. A wish was expressed by some of the members present that he would publish his notes, scattered extracts of which have already appeared in the Delhi newspaper : we are sure that such an object would meet with general encouragement, and that this first fruit of English education in the mofussil would do credit to the pupil, and to his *Almamater* the Delhi Anglo-Indian College.

The best thanks of the Society, were voted to Dr. GERARD and to MOHUN LAL for these valuable contributions.

Read a letter from W. H. WATHEN, Esq. Persian Secretary to the Bombay Government, communicating a memoir on the Uzbek state of Kokan, (the ancient Ferghana) in central Asia ; also the memoir of a Pilgrimage made by an Usbek and his two sons from Kokan through Russia to Mecca, in the year 1820.

These interesting papers, relating to a state placed betwixt our Indian Empire, China, and the territories of Russia, will form a valuable sequel to the information derived from the expeditions of MOORCROFT, BURNES, and GERARD : we make no analysis, because they will be published at length, in a forthcoming No. of the Journal.

Physical.

A small collection of the principal fossil shells of the gault and greensand of Hythe was presented in the name of Captain JOHN FINNIS, on his return to India from furlough.

These shells are described in a small work by Professor FITTON, on the Geology of Hastings; he deduces from their presence the identity in time of this formation and the chalk: the collection contains the following shells:

Sphæra corrugata,	Greensand,	Inoceramus sulcatus,	Gault.
Cypriua angulata,	do.	———— concentricus,	do.
Ostrea ———,	do.	Solarium ———,	do.
Terebratula sella,	do.	Nautica umbilicata,	do.
———— elegans,	do.	Ammonites ———,	do.
Nucula pectinata,	do.	Pentacrinites,	do.
———— ovalis,	do.	Belemnites,	do.
Serpula——,	do.	Echinus ananchites, (chalk.)	
		———— spatangus, (gravel.)	

A letter was read from Major, BURNEY, Resident at the Burmese Court, dated Rangoon, June 17th, accompanying an extensive collection of fossil bones from Yenang-young and the neighbouring hills in Ava, for the inspection and examination of the members of the Asiatic Society. Also a few in a separate package obtained by Captain McLEOD, during his Mission up the Khyendwen river, (a fossil elephant's jaw and teeth.)

Major BURNEY describes the mode in which this magnificent collection had been made by the natives at his instigation. "Every Burman, from the Governor to the peasant, strove to make the search after fossils a good speculation, and they were brought to me one by one to secure a more advantageous bargain. There was no digging for them: they were found lying on the very surface of the ground, sometimes only partially covered by the peculiar sandy and gravelly soil of that part of the country. Some of the fossil teeth will be observed to be injured: this proceeds from small bits having been chipped off by the Burmese to be used as medicine,—to be ground down with water and taken for the gravel."

The general nature of the Ava fossils has been so ably treated of in Professor BUCKLAND'S memoir on the collection taken home by Mr. CRAWFURD, that nothing is wanting on this head: almost all the individuals noted by him may be recognized in the present series: which contains on a rough examination the following species:

- 2 jaws and several teeth of the fossil elephant.
- 7 jaws and teeth of mastodon, hippopotamus, &c.
- 8 fragments of alligators' jaws.
- 47 vertebræ of saurian reptiles.
- 170 fragments of the emys and trionyx shell.
- 1 humerus of the rhinoceros, and nearly
- 200 unclassified fragments of bone.

The Secretary noticed the safe arrival of the gigantic remains of the fossil elephant discovered by Dr. SPILSBURY in the banks of the Omar Nadî near Narsinghpur.

They had been dispatched from Jabalpur across the country to Benares, where Dr. Row had kindly taken charge of them until an opportunity offered for their secure conveyance to Calcutta under charge of Captain SAYERS. The five fragments, consisting of the extremities of two fossil femurs of a mammoth and the head of a buffalo, were placed on the table side by side of modern skeletons of the same nature, to exhibit the contrast more forcibly. Extracts from Dr. SPILSBURY'S letters, and a note by the Secretary were read:—also a memoir by Dr. SPILSBURY on a geological section which he has recently had an opportunity of making across the

valley of the Nerbudda from *Tendukhera* to *Bittoul*, during which he discovered another locality of fossil deposit. It was accompanied by a map of the country.

This paper and the fossil notices shall be given if possible in our next number, to satisfy the great curiosity excited by the uncommon perfection of the specimens.

The geological specimens were accompanied by samples of the coal discovered by Captain OUSELEY, whose report of progress in examination of the strata was also read.

IX.—Miscellanea.

1.—Note on the Locality of *Rājagriha*, and Description of the Town of that Name in *Behár*, and of a Hot Spring in the neighbouring Hills.

Rājagriha was JARASANDHA'S capital city:—query—is it the *Rājagriha*, the capital of *Práchi* proper, which was built by PRITHU, and taken by BALARA'M, brother of KRISHNA, or is the latter the same as *Rājmehal*? The present village of *Rājagriha*, or *Rājgr*, contains about 800 or 900 houses, and is situated about 13 or 14 miles S. S. W. of the town of *Behar*, on the north side of a range of hills of that name (*Rājgr*). A little way up a valley, south of the village, are a number of hot-springs, similar to that at *Monghr*. In the hottest spring the water stood at 108° in October, when the temperature of the atmosphere was about 70°. The water on a rough examination was found to contain a very minute portion of nitre, or a substance resembling it. These springs are considered sacred by the Hindús. Farther up the valley expands into an open plain, surrounded by hills, about one and a half or two miles in diameter, where in several places the remains of the old city of JARASANDHA is pointed out. There is a tradition of a great battle having been fought there between the Jains, under SREENIKA Mahárāja, and JARASANDHA, or his successors; and a cave in the side of one of the hills, (similar in shape to those near *Gyah*.) is pointed out as the place where one of the partics concealed all his treasure: tradition says, it is still to be found.

There is still an establishment of Jains in *Rājgr*: they have a number of small temples on the tops of the neighbouring hills, and at a place called *Pava Purl*, six or seven miles east from *Rājgr*, in the centre of a small lake, is one of some importance, which is visited by numerous Jains on their way to, and from, *Párisnáth*.

T. R.

2.—Note on the Temperature of Wells at *Náhan*.

With reference to the Rev. Mr. EVEREST'S Remarks on the Climate of the Fossil Elephant, (Art. III. January No.) the following observations relative to the temperature of *Náhan*, may (in absence of better information) be useful.

November 7. Temperature of several springs issuing from the north-side of the hill, on which *Náhan* is situated, 70½ to 71°; water exposed in *Boulis*, 64 to 69°. Observation taken in the evening.

	Open air shortly	Shade.	3 P. M.	Winds.
Nov. before sunrise.	10 A. M.	shade.	shade.	
7	50°	62°	65	S. W. cloudy.
8	59	64	67°	S. W. 61½ shortly after sun-set.
9	56	64	65	W. 67° 2 P. M.
10	56		64	

Snow is said in the memory of man to have fallen only once at *Náhan*.

From the localities of *Náhan*, which is situated on the bare crest of a rocky hill, it seems improbable that wild elephants should frequently haunt that place; the *Kardah Dán* lies about 6 or 800 feet lower down, it is covered with rich rank vegetation; here elephants are found.

Hyenas are common at *Simlah*, the mean temperature of which is between 57° and 58°; they are found during summer, at elevations of 8 or 10,000 feet, their winter habitations I know not.

Has Mr. FLEMING explained in what manner we find fossil tropical plants in regions where such plants no longer thrive? LYELL remarks, "We cannot suppose the leaves of tree ferns to be transported by water for thousands of miles without being injured." D. S.

3.—*Fall of Fish.*

On the 16th or 17th May last, a fall of fish happened in mouza *Sonare*, pergunna *Dhata Ekdullah*, zillah *Futtehpur*. The zemindars of the village have furnished the following particulars, which are confirmed by other accounts: About noon, the wind being from the west, and a few distant clouds visible, a blast of high wind, accompanied with much dust, which changed the atmosphere to a reddish yellow hue, came on; the blast appeared to extend in breadth about 400 yards, chappars were carried off, and trees blown down. When the storm had passed over, they found the ground, south of the village, to the extent of two bigahs, strewed with fish, in number not less than three or four thousand. The fish were all of the *Chalwa* species, (*Clupea cultrata*, Shakespear's Dictionary,) a span or less in length, and from one and a half to half a seer in weight: when found, they were all dead and dry. *Chalwa* fish are found in the tanks and rivers in the neighbourhood. The nearest tank in which there is water is about half a mile south of the village. The *Jumna* runs about three miles south of the village, the *Ganges* 14 miles N. by E. The fish were not eaten; it is said, that in the pan they turned into blood! S.

Allahabad, June 26, 1834.

4.—*Transactions of the Batavian Society, Vol. XIV.*

[We have given an analysis of the 13th volume of this rapidly increasing collection, in vol. ii. page 597.]

The contents of the 14th volume are, "Historical Review of the Proceedings of the Europeans at Japan, by G. E. MEYLAN, chief of the Netherland trade at Japan." Also a "Treatise on Acupuncture, by Dr. VON SIEBOLD."

The whole of the 15th volume is a Grammar of the Java language, by the late Mr. CORN. DE GROET, published at Batavia by Mr. GERICKE, Director of the Java Institution at *Soerakarta*.

5.—*Protection of Tinned Sheet Iron from Rust.*

Serjeant DODD, late overseer of the *Jumna* works, constructed a buoy of tin, which he painted with two coats of white lead: he then gave it a coat of hog's lard, about the thickness of a coat of paint, and laid over this latter, another coat of paint: each coat was allowed to dry thoroughly. The buoy was then placed in the river, so as to remain continually under water all the rains, or nearly a year. When taken up, the experiment was found to have succeeded completely. [Had the water penetrated to the tin, a galvanic action would have caused a rapid corrosion of the iron. If the iron however were carefully coated on the edges and joints, the tin would form a perfect protection, without the aid of paint or grease.] A.

Meteorological Register, kept at the Assay Office, Calcutta, for the Month of July, 1834.

Days of the Month	Barometer reduced to 32° Fahr.			Thermometer in the Air.			Depression of Moist-bulb Thermometer.			Hair Hygrometer.		Rain. Inches.	Wind.		Weather.			
	At 4 A.M.	At 10 P.M.	At 4 P.M.	At 4 A.M.	At 10 A.M.	At 4 P.M.	At 4 A.M.	At 10 A.M.	At 4 P.M.	At 10 A.M.	At 4 P.M.		Morning.	Noon.	Evening.	Morning.	Noon.	Evening.
1	530	601	530	80	83.9	85.0	84.6	82.1	At 10 P.M.	2.6	3.8	4.8	96	n. e.	.05	stratus.	clear.	Evening.
2	626	632	544	83.2	84.1	86.8	85.5	82.2	At 4 P.M.	0.2	3.7	3.7	98	o.	.05	overcast.	dull.	do
3	607	672	570	80.2	83.9	88.1	86.8	83.0	At 10 P.M.	0.2	4.0	5.4	95	S. e.	0.2-10	clear.	showery.	do
4	722	645	564	83.8	84.2	88.0	86.7	82.4	At 4 P.M.	5.0	5.2	5.0	96	S. E.	1.35	numb.	cloudy.	clear.
5	627	664	568	80.8	81.2	84.9	83.8	82.1	At 10 A.M.	2.0	3.1	4.0	98	S. E.	0.2	clear.	do	do
6	632	676	602	80.4	85.0	89.3	85.1	82.8	At 4 P.M.	0.8	4.6	3.6	98	o.	.25	storm.	do	do
7	637	676	580	80.7	81.0	85.6	83.7	83.4	At 10 A.M.	4.4	5.9	6.1	94	o. w.	.10	stratus.	fine.	bright.
8	644	633	593	80.7	81.2	86.7	81.6	84.6	At 4 P.M.	1.7	6.7	6.5	92	o. s.	.03	clear.	do	do
9	644	668	550	83.2	87.6	91.8	91.2	84.2	At 10 P.M.	2.0	7.4	10.3	87	o. s.	.03	do	cum.	do
10	625	640	540	83.1	88.2	92.1	91.6	86.0	At 4 P.M.	2.1	7.4	9.8	89	o. s.	.02	do	do	do
11	579	590	468	84.0	89.6	92.0	92.6	79.2	At 10 A.M.	3.0	6.4	8.9	89	o. s.	1.10	rain.	clear.	rain.
12	554	590	460	83.4	87.1	90.3	89.6	85.6	At 4 P.M.	1.8	5.7	8.7	89	o. s.	1.10	haze.	do	do
13	457	540	402	83.4	87.1	90.0	87.8	83.4	At 10 A.M.	1.3	5.7	6.6	93	o. s.	.05	clear.	do	do
14	459	499	420	81.2	86.8	86.8	85.2	81.5	At 4 P.M.	3.4	5.8	5.3	96	o. s.	.60	clear.	showery.	do
15	451	544	486	80.0	87.7	90.0	88.8	86.2	At 10 P.M.	0.0	5.1	6.6	95	e. s.	.94	do	rainy.	do
16	571	538	548	82.0	88.5	96.0	96.0	83.1	At 4 P.M.	1.6	6.3	4.9	94	o. s.	.10	do	showery.	cum. cir.
17	615	669	574	81.4	81.2	87.6	89.0	88.4	At 10 A.M.	1.2	5.3	5.5	95	o. var.	.10	do	clear.	do
18	559	636	548	82.3	87.9	90.3	89.6	83.2	At 4 P.M.	1.0	5.1	6.1	95	o. var.	.10	do	cum. str.	do
19	574	526	429	82.0	88.4	90.1	88.5	83.0	At 10 P.M.	2.0	5.5	5.7	96	o. e.	.25	do	do	do
20	567	526	429	82.0	88.4	90.1	88.5	83.0	At 4 P.M.	2.0	5.5	5.7	95	o. e.	.25	do	do	do
21	506	520	350	82.0	85.1	90.0	88.5	83.2	At 10 A.M.	4.1	4.1	6.9	92	o. s.	.40	cir. cum.	fine.	cumulus.
22	470	514	410	82.0	87.4	90.0	88.9	84.2	At 4 P.M.	1.3	5.4	5.8	94	o. s. w.	.40	do	overcast.	fine.
23	447	428	398	82.0	87.5	89.6	87.5	83.2	At 10 P.M.	1.3	6.1	4.6	96	s. e.	40-10	haze.	do	clear.
24	410	428	398	82.0	87.0	90.4	88.6	84.5	At 4 P.M.	5.0	5.0	5.6	94	o. n.	10-20	do	do	do
25	384	476	298	82.0	86.4	88.6	87.8	83.0	At 10 A.M.	2.0	4.4	5.1	97	N. E.	.95	do	cum.	do
26	376	426	370	81.4	85.1	84.4	86.0	82.2	At 4 P.M.	1.4	4.1	4.5	97	N. E.	.30-30	clear.	rain.	scud.
27	425	444	360	83.0	81.0	85.6	87.7	84.6	At 10 P.M.	1.8	4.3	5.6	97	N. E.	.30-30	clear.	rain.	clear.
28	460	522	424	83.0	83.0	89.7	89.7	84.3	At 4 P.M.	0.8	4.3	5.6	97	N. E.	.15	hard rain.	haze.	do
29	504	530	430	83.0	87.3	91.5	89.7	83.4	At 10 A.M.	1.0	5.6	6.5	95	o. e.	.15	do	do	do
30	497	512	390	82.0	86.2	87.4	83.8	81.3	At 4 P.M.	3.3	5.3	5.4	95	N. E.	.15	do	do	do
31	494	396	278	81.1	86.7	104.0	87.6	83.2	At 10 P.M.	0.5	4.8	5.3	96	o. e.	.15	do	cloudy.	do
Mean, 29, 540.	563	470	562	81.5	86.6	90.0	88.0	83.3	At 4 P.M.	1.4	5.1	6.0	94	o. n. e.	5.50	do	rain kept off.	do

There was a smart shock of an earthquake felt in Nipal on the 11th instant, at 9h. 40m, P. M. The same was experienced at Monghbir at 10h. 10m. P. M. It was not observed in Calcutta. The Standard Barometer, announced at the foot of the last Journal as just arrived per Neptune, was found, on opening the case, to be broken! The cistern was cracked, and the mercury had escaped.



For use in Library only

